



**US Army Corps  
of Engineers**

Construction Engineering  
Research Laboratories

USACERL Technical Manuscript 97/15  
November 1996

# **The Quarry Heights Military Reservation in the Republic of Panama**

## **Historical Documentation of the Installation and Bldg. 23**

by

Susan I. Enscoe, Mira D. Metzinger, and Julie L. Webster

The United States is obligated by treaty to relinquish control of the Panama Canal, the former Panama Canal Zone, and all U.S. military installations in Panama to the Panamanian government by 31 December 1999. After this date, it will be difficult to study the U.S. military structures designed and built specifically for this region. Creating a lasting record of these historic buildings is necessary for an accurate and complete history of the U.S. armed services in Panama, as recommended in the Department of Defense (DoD) Overseas Environmental Baseline Guidance Document. That document and other applicable guidelines specify procedures for the documentation, preservation, and alteration of historic military properties subject to actions that would affect their historical integrity. The Quarry Heights Military Reservation, noted for its architectural significance, was among the first military properties in Panama documented according to the standards of the Historic American Buildings Survey (HABS).

This technical manuscript presents HABS documentation of Quarry Heights Bldg. 23, a field-grade officer's quarters. The original archival records, designated



HABS No. CZ-4 and CZ-4-A, are on file at the Library of Congress, but obtaining a copy of these records may involve delays plus handling and reproduction costs. The objective of this publication is to provide the technical content of HABS No. CZ-4 and HABS No. CZ-4-A, on a timely and cost-effective basis, to Army and Department of Defense personnel with responsibilities for U.S. cultural resources located in the Republic of Panama.

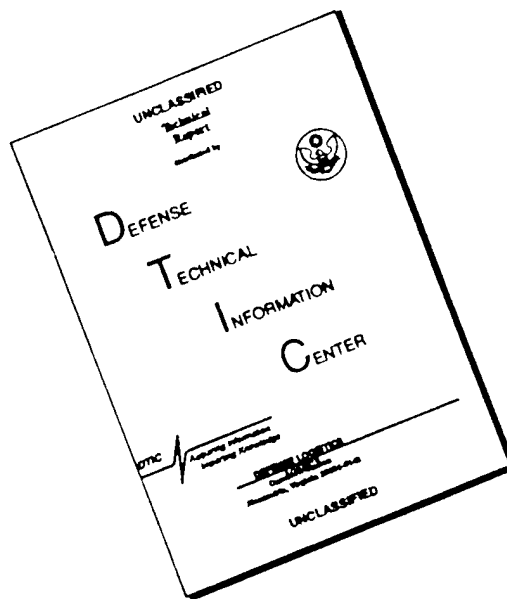
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## Foreword

This Technical Manuscript was originally published by the Historic American Buildings Survey (HABS) as HABS No. CZ-4 and HABS No. CZ-4-A (U.S. Department of the Interior National Park Service, 1996). The work was sponsored by the Department of Defense (DoD) Legacy Resource Management Program under DoD Project Number 93-0996; Military Interdepartmental Purchase Request E87930475, dated 23 August 1993.

The work was performed by the Maintenance Management and Preservation Division (FL-P) of the Facility Technologies Laboratory (FL), U.S. Army Construction Engineering Research Laboratories (USACERL). Dr. Simon S. Kim is Chief, CECER-FL-P, and Donald F. Fournier is Operations Chief, CECER-FL. The USACERL technical editor was Gordon L. Cohen, Technical Information Team.

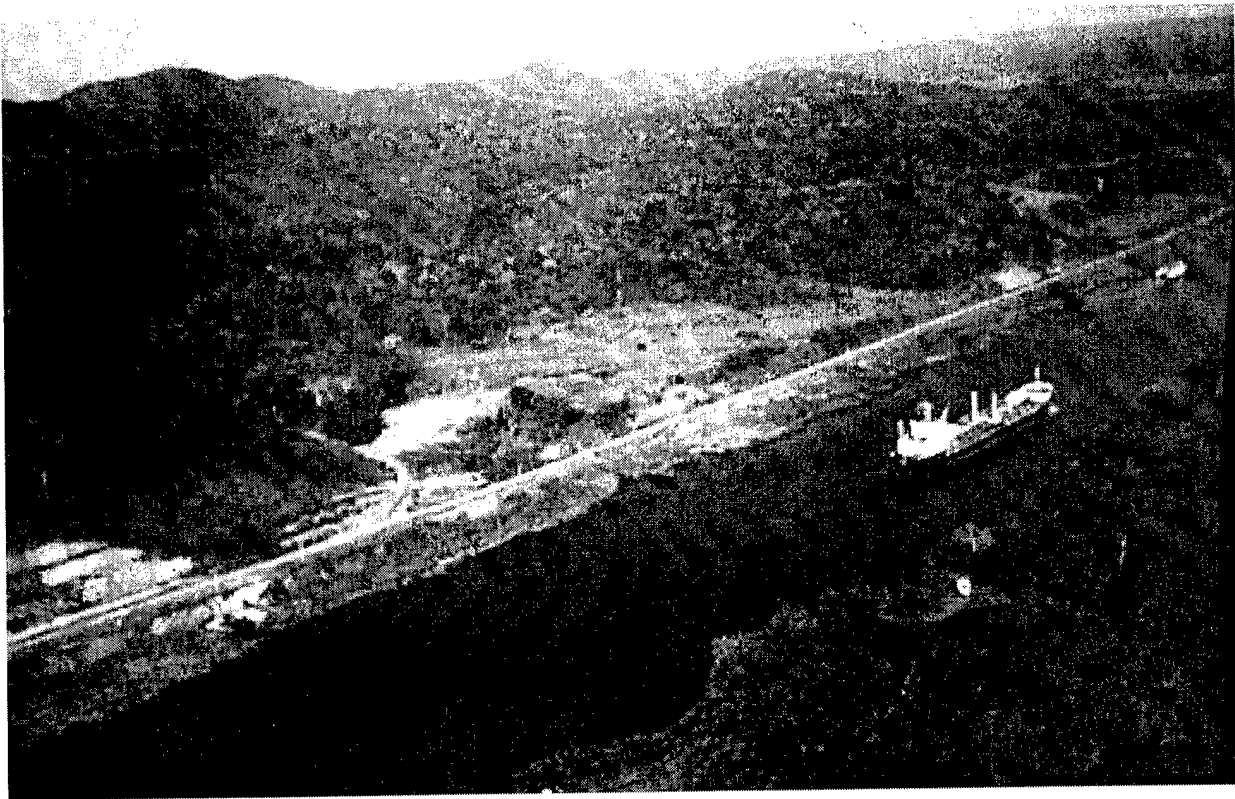
Grateful appreciation is expressed to those who supported this project with their efforts and resources. At the Headquarters, U.S. Army Garrison-Panama Directorate of Engineering and Housing, Corozal, thanks are due to LTC John Lovo, Director; Suzanne P. Johnson, cultural resources volunteer; Ivan Klasovsky, master planner; Julio Campos, architect; and John Hannaman, Chief of Operations. Gratitude is also expressed to Dolores De Mena, historian at Headquarters, U.S. Army South, Fort Clayton, Republic of Panama; Lysa Wegman-French, HABS coordinator at Intermountain Field Area, Denver, CO; and Charles Moorehead, architectural historian at Army Engineer District Mobile. Special thanks are due to Colonel and Mrs. James M. Willey, residents of Quarry Heights Bldg. 23, upon whom the authors, research assistants, and photographer repeatedly imposed to conduct the study.

COL James T. Scott is Commander of USACERL, and Dr. Michael J. O'Connor is Director.



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*The Panama Canal, photographed approaching Gamboa on the Pacific side.*

## Introduction

### Background

Under the terms of the Panama Canal Treaty of 1977, the United States will relinquish control of the Panama Canal, the former Panama Canal Zone, and all U.S. military installations located in Panama to the Panamanian government by 31 December 1999. After this date, it will be difficult to study the U.S. military structures designed and built specifically for this region. Creating a lasting record of these historic buildings is necessary for an accurate and complete history of the U.S. armed services in Panama. Many of these military structures were designed and constructed by the Isthmian Canal Commission (ICC) and the Panama Canal Commission (PCC). As the Federal agency responsible for constructing and operating the Canal and governing the Panama Canal Zone, the ICC/PCC worked closely with U.S. military forces. Early structures built by the ICC/PCC were later used for military purposes, and new Army installations were constructed by the same ICC/PCC department that built towns for canal workers. This unique combination of resources produced a built environment in the former Canal Zone—both military and civilian—that is highly unified by its architecture.

The stewardship of military cultural resources in Panama is subject to the *Final Governing Standards for Environmental Compliance on DoD Installations in Panama* (USSOUTHCOM, September 1993). These standards comprise implementation rules for DoD's *Overseas Environmental Baseline Guidance Document* (DoD Overseas Environmental Task Force, October 1992). Collectively, the applicable parts of these guidelines specify procedures for the documentation, preservation, and alteration of historic military properties that are subject to actions which would affect their historical integrity.

To help implement the applicable DoD guidance, U.S. Army Engineer District Mobile in 1992 conducted a preliminary inventory of significant historic structures at 35 military installations and support facilities in the former Panama Canal Zone. Recommendations were provided for sites deserving detailed documentation. The Quarry Heights Military Reservation was noted for its architectural significance: the large wooden residences with galleries are thought to be original "Camp Town" structures associated with the construction of the Canal.

Beginning in Fiscal Year 1994, the DoD Legacy Resource Management Program funded the U.S. Army Construction Engineering Research Laboratories (USACERL) to prepare documentation of select Panama properties in accordance with standards specified by Historic American Buildings Survey (HABS), an agency of the



*Quarry Heights Military Reservation, Bldg. 23 and neighborhood.*

U.S. Department of the Interior. The HABS documentation of Quarry Heights was part of a five-site study that represents the first detailed architectural record of U.S. military structures in the former Canal Zone.

This technical manuscript presents HABS documentation of Bldg. 23, a field-grade officer's quarters at the Quarry Heights Military Reservation. The structure is an outstanding example of the style of quarters constructed for high-ranking Canal officials during the Canal construction era (1904-1914). Prominent characteristics include wide, continuous verandas, plentiful windows, raised construction, corrugated iron roofing, and the use of intermediate overhangs to protect windows and walls from the region's abundant rain.

The original archival materials comprising HABS No. CZ-4 and CZ-4-A are on file at the Library of Congress in its Historic American Buildings Survey/Historic American Engineering Record collection. This collection is available to the public for research purposes, but obtaining copies of the archival materials may involve delays plus handling and reproduction costs.

## Objectives

The objective of the research was to prepare HABS Level II documentation of the Quarry Heights Military Reservation, with specific attention to the historical and architectural significance of Bldg. 23, a field-grade officers' quarters.

The objective of this document is to provide the technical content of HABS No. CZ-4 and HABS No. CZ-4-A, on a timely and cost-effective basis, to Army and Department of Defense personnel with responsibilities for U.S. cultural resources located in the Republic of Panama.

## Approach



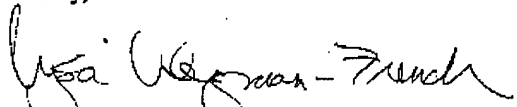
Quarry Heights Bldg. 23 was documented at a HABS Level II intensity. Level II documentation comprises in-depth descriptions of architectural characteristics and a detailed historic context for interpreting the significance of these structures. Textual information is illustrated by black-and-white perspective-corrected photographs shot on large-format negatives. Pertinent historic photographs and architectural plans are included as available.

HABS CZ-4 is mostly narrative, comprising a general history of the region, U.S. military activities there, and a site-specific history of Quarry Heights. HABS CZ-

4-A largely consists of architectural photographs and drawings of Bldg. 23, and includes descriptive narrative about the structure's architectural characteristics.

## Mode of Technology Transfer

Guidelines for documenting historic military facilities according to HABS standards are available in USACERL Technical Report CRC-94/03, *Guidelines for Documenting Historic Military Structures* (Susan I. Enscoe, Dan Lapp, and Mira D.

	<p>United States Department of the Interior NATIONAL PARK SERVICE INTERMOUNTAIN FIELD AREA Rocky Mountain System Support Office 12795 West Alameda Parkway Post Office Box 25287 Denver, Colorado 80225-0287</p>	
<p>IN REPLY REFER TO: H38 (IMFA-RM-S) HABS</p> <p>MAY 23 1996</p>		
<p>Julie L. Webster Principal Investigator USACERL P.O. Box 9005 Champaign, Illinois 61826-9005</p>		
<p>Dear Ms. Webster:</p>		
<p>We are pleased to inform you that we have reviewed and accepted the Historic American Buildings Survey (HABS) documentation for <u>Quarry Heights Military Reservation including the Officers' Quarters (Building 23)</u> in the Balboa vicinity, Former Canal Zone, Republic of Panama, HABS No. CZ-4. We will transmit the documentation to the Library of Congress for permanent storage.</p>		
<p>Thank you for providing these documents. We appreciate your commitment to the recordation of our Nation's endangered historic resources.</p>		
<p>Sincerely,</p> <p></p> <p>Lysa Wegman-French, Historian Stewardship and Partnership Team</p>		

Confirmation of acceptance for HABS CZ-4 by National Park Service.

Metzinger, March 1994). DoD personnel may obtain a copy of CRC-94/03 through the Defense Technical Information Center (DTIC). Call 703-274-7633 to order; reference DTIC accession number ADA279259.

Historic preservation requirements also pertain to historic engineering sites and structures. A USACERL Technical Report, now in final preparation, will present guidelines for documenting historic military engineering facilities according to the standards of the Historic American Engineering Record (HAER). To reserve a copy of this report, send your name, office symbol, agency name, and full mailing address to:

Technical Editor, Facilities Technology Laboratory  
Attn: CECER-TR-I  
USACERL  
P.O Box 9005  
Champaign, IL 61826-9005

For information on host nation requirements governing U.S. military cultural resources outside of the continental United States (OCONUS), send e-mail to:

oconus\_crm@cecer.army.mil

QUARRY HEIGHTS MILITARY RESERVATION

HABS No. CZ-4

Ancon Hill

Balboa Vicinity

Former Panama Canal Zone

Republic of Panama

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY

Rocky Mountain Regional Office

National Park Service

Department of the Interior

12795 W. Alameda Parkway

Denver, Colorado 80225

# HISTORIC AMERICAN BUILDINGS SURVEY

## INDEX TO PHOTOGRAPHS

### QUARRY HEIGHTS MILITARY RESERVATION

HABS No. CZ-4

Ancon Hill

Balboa Vicinity

Former Panama Canal Zone

Republic of Panama

Documentation: 2 photographic copies of photos (ca. 1938, 1921)  
1 photographic copy of map (ca. 1930)  
42 data pages (1994, 1995)

Wilmer Zehr, Photographer, June 1995.

CZ-4-1 Photographic copy of photograph from "Panama Birdseye Presented to The Panama Canal by Major General Sturgis, October 1, 1938" (original print located in the Panama Canal Commission Technical Resources Center Collection, Balboa, Republic of Panama).

AERIAL VIEW OF ANCON HILL AND QUARRY HEIGHTS

CZ-4-2 Photographic copy of photograph, ca. 1921 (original print located in the National Archives & Records Administration, Still Picture Branch, Panama Canal Collection Series 185-G, #453, Washington, D.C.).

AERIAL VIEW OF QUARRY HEIGHTS AND BALBOA FROM SOSA HILL

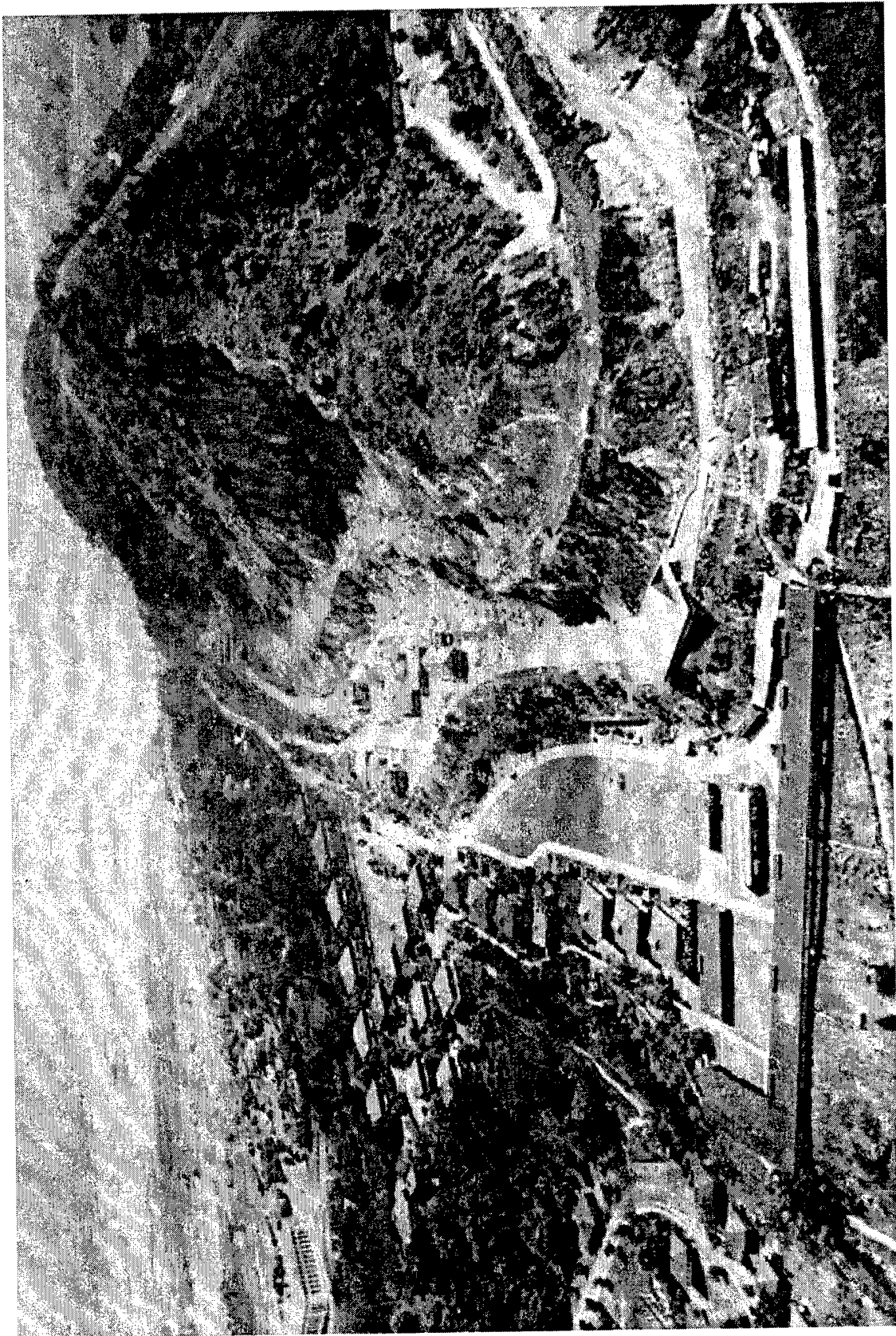
CZ-4-3 Photographic copy of map, dated May 23, 1930 (original map located in the vault at the Directorate of Engineering and Housing, U.S. Army Garrison-Panama, Corozal, Republic of Panama).

MAP OF QUARRY HEIGHTS MILITARY RESERVATION



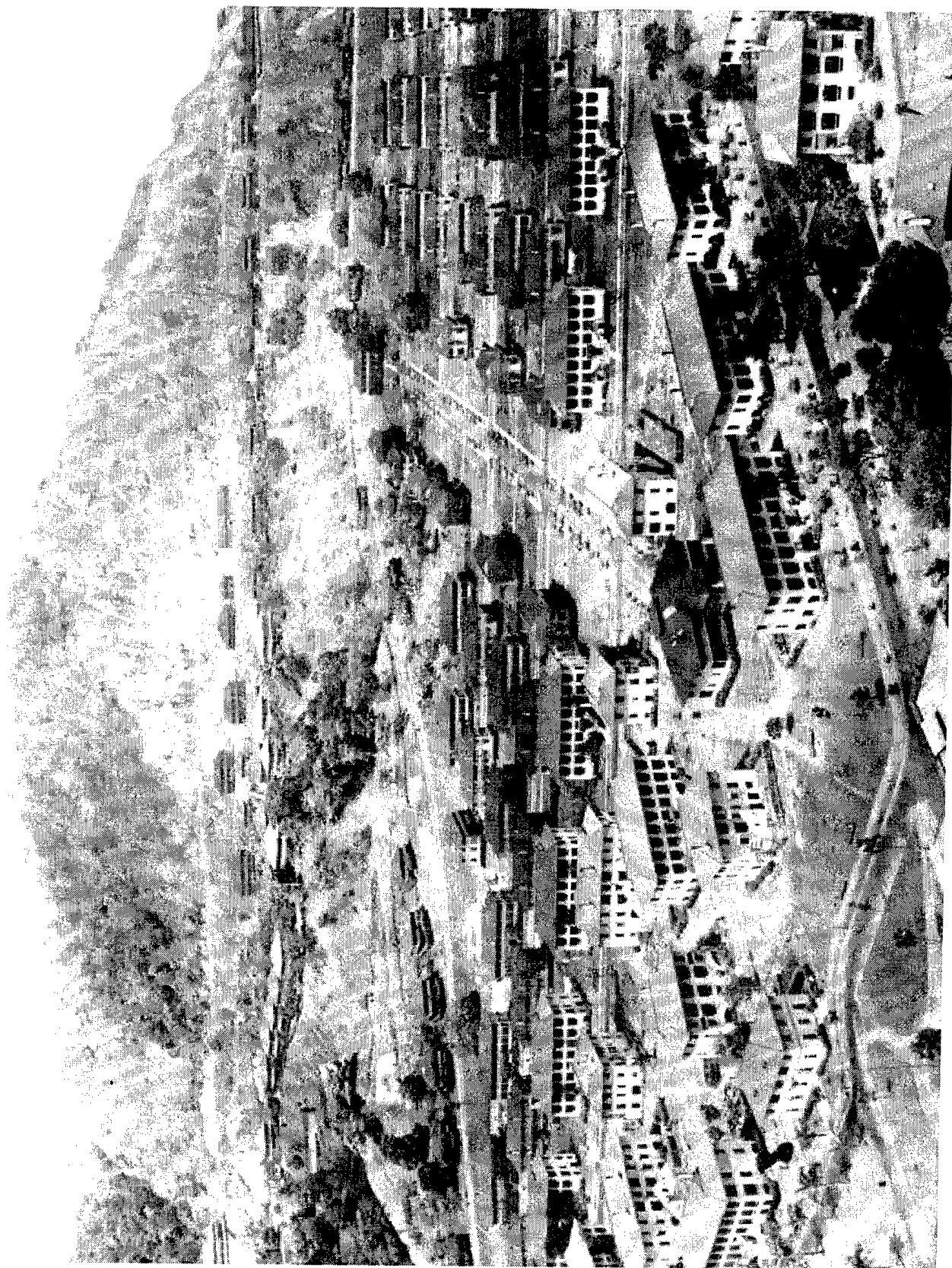
HISTORIC AMERICAN BUILDINGS SURVEY  
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HABS No. CZ-4-1

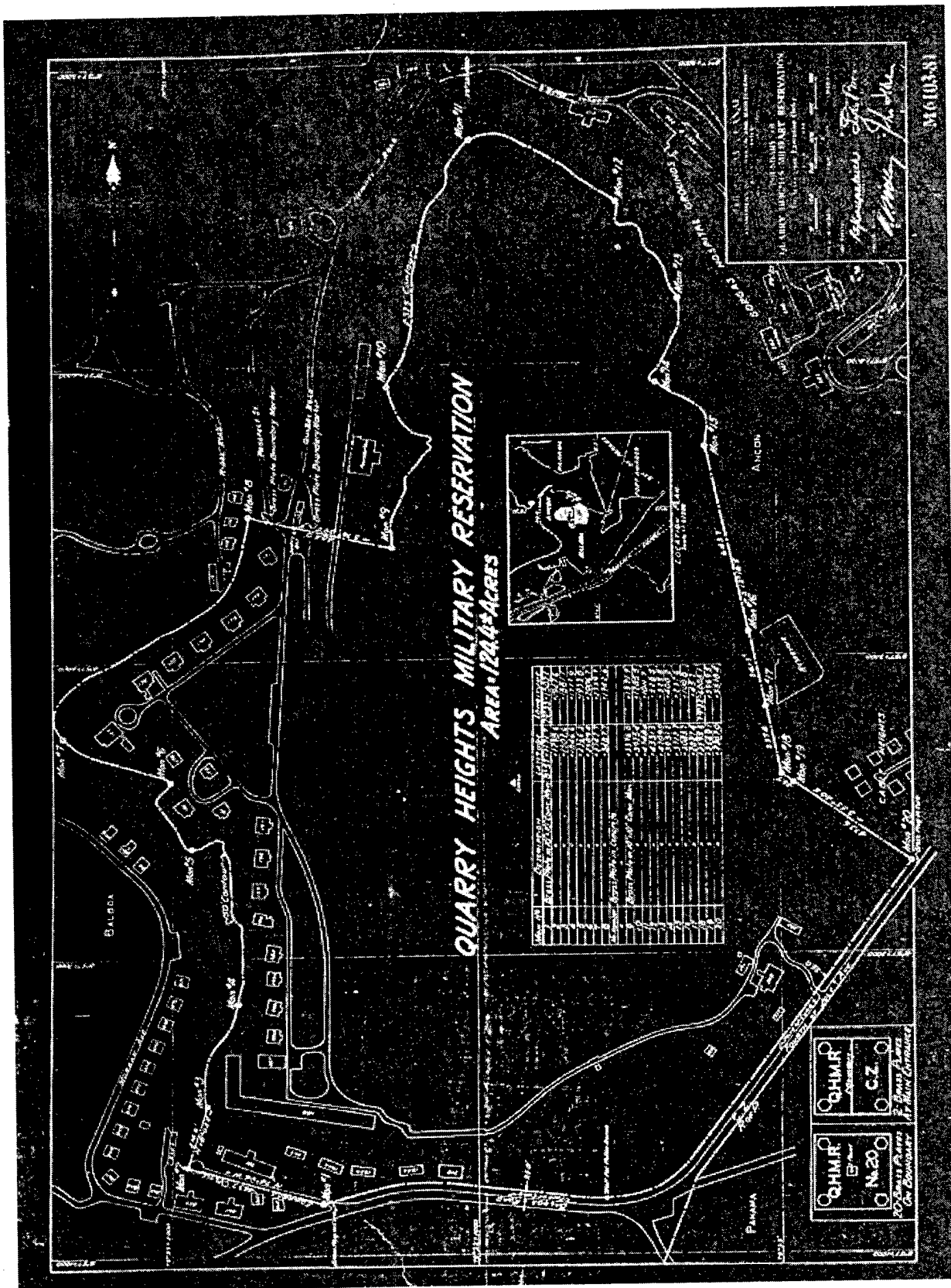


HISTORIC AMERICAN BUILDINGS SURVEY  
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HABS No. CZ - 4 - 2



HABS No. CZ-4-3



## HISTORIC AMERICAN BUILDINGS SURVEY

QUARRY HEIGHTS MILITARY RESERVATION

HABS No. CZ-4

Location: Ancon Hill, Balboa Vicinity, Former Panama Canal Zone, Republic of Panama, Central America.

Present Owner: United States Department of Defense

Original Use: Army Headquarters

Present Use: United States Southern Command Headquarters

Significance: Quarry Heights is the headquarters of the United States Southern Command (USSOUTHCOM) with a housing area for upper-echelon officers. Quarry Heights is sited on the west slope of Ancon Hill, on the site of a quarry used for producing stone for Canal construction, and overlooks the planned Canal company town of Balboa. As the site was considered temporary, the Building Division of The Panama Canal erected frame structures from existing designs created during the construction phase of the Canal. With one exception, the Quarry Heights officer housing stock constitutes the only surviving example of this "construction camp" architectural style. Quarry Heights has been used as a military headquarters facility continuously since construction began in 1915.

PART 1. HISTORICAL INFORMATION:

A. Physical History

1. Original Construction Date: 1915
2. Planner: United States Department of Defense and The Panama Canal
3. Original and Subsequent owners: Isthmian Canal Commission, United States Department of Defense
4. Builders, Contractors, and Suppliers: The Building Division of The Panama Canal
5. Alterations and Additions: The installation has evolved over the years, primarily through expansion in 1921 which added the summit of Ancon Hill to the reservation. Housing has been added, as has a new headquarters building and a bombproof tunnel under the Hill.

B. Historical Context:

Early Explorations of Water and Land Routes

While the Panama Canal and the surrounding Canal Zone are most frequently associated with the United States, interest in building or discovering a waterway to connect the Atlantic and Pacific Oceans at the Isthmus of Panama began centuries ago. Christopher Columbus searched for such a waterway in his final voyage, as did Vasco de Balboa, who discovered the Pacific Ocean in 1513, and Mexican explorer Hernando Cortez in the 1520s, before the development of projects for artificial passages through the Isthmus had begun.<sup>1</sup>

In 1533 the Chagres River was made navigable to within twenty miles of Panama City at Venta de Cruces, which means "the crossing." The eighteen-mile Las Cruces Trail provided access the rest of the way to the Pacific.<sup>2</sup>

King Charles V of Spain took the first official step toward construction of a canal in 1534, when he had a survey made of the land from the end of the Chagres River to the Pacific, which is the route of the Panama Canal today. In 1534, however, Pascual de Andagoya, the commissioner

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<sup>1</sup> Hugh Gordon Miller, The Isthmian Highway: A Review of the Problems of the Caribbean, (New York: MacMillan Co., 1929), 7; John O. Collins, The Panama Guide, (Mount Hope, CZ: I.C.C. Press, 1912), 57.

<sup>2</sup> John and Mavis Biesanz, The People of Panama, (New York: Columbia University Press, 1955), 25; Miller, The Isthmian Highway, 7; Collins, The Panama Guide, 57.



who made the survey, said there were too many obstacles for even the vast resources of the powerful king to consider building a canal.<sup>3</sup>

During this time Spain conquered Peru, and Charles needed to transfer gold and other precious valuable metals through the Isthmus. The Las Cruces Trail became the most popular route. Much of this trail was built over swamps and had to be filled in with rocks carried several miles. When the trail was finished, it was wide enough to accommodate two carts. The Spaniards sent boats down the Atlantic and into the Chagres as far as Cruces where the trail crossed the river. There they would receive the riches brought in carts, on pack mules, or by slaves, and take it back to the Atlantic harbor at Nombre de Dios.

In 1536, a trading post, wharf, and warehouse were built at Venta de Cruces. Cruces became the largest and most important village in the Isthmus interior. Throughout the sixteenth century, transit was often halted by cimarrones (runaway Negro slaves). To protect traffic on the Chagres, Spain built Fort San Lorenzo at the river's mouth, a fortress at the entrance to the Nombre de Dios harbor, and a fortification at Venta de Cruces by 1597. The Las Cruces Trail was paved by 1630, and Spain continued to grow richer and more powerful in the New World. Panama became the crossing place for trade routes from China, Japan, and India as well as South America.<sup>4</sup>

#### Spain and Britain Fight for Isthmian Control

Despite the negative reports of the 1534 survey, Charles V was still interested in building a canal. There were four major routes under consideration -- Panama, Nicaragua, Darien (southeast of Panama), and Tehuantepec (Mexico). Spanish historian Francisco Lopez de Gomara supported his king, and wrote in 1552 that any of the four sites would be beneficial to supplying a trade route to the Indies. Portuguese navigator Antonio Galvao also published a book expressing his interest in digging a canal at any of the four sites.<sup>5</sup>

Charles V abdicated the throne in 1555. His son and successor, Philip II, was opposed to the idea of a canal. Although he did order a survey in 1567 to consider the possibility of a canal through

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<sup>3</sup> Miller, The Isthmian Highway, 7; Collins, The Panama Guide, 57; Miles P. DuVal, Cadiz to Cathay: The Story of the Long Struggle for a Waterway Across the American Isthmus, (Stanford, CA: Stanford University Press, 1940), 6.

<sup>4</sup> Susie Pearl Core, Trails of Progress, or the Story of Panama and its Canal (New York: Knickerbocker Press, 1925), 24-26; Gerstle Mack, The Land Divided: A History of the Panama Canal and Other Isthmian Canal Projects, (New York: Alfred A. Knopf, 1944), 53-55; U.S. Department of State, Final Environmental Impact Statement for the New Panama Canal Treaties, (Washington, D.C.: GPO, December 1977), Appendix, G.14.

<sup>5</sup> DuVal, Cadiz to Cathay, 6-7.

Nicaragua, via the San Juan River and Lake Nicaragua, the report was as unfavorable as the Panama survey, and plans for a canal were abandoned. Philip believed the Isthmus served as protection for Spanish shipping on the Pacific. The opening of a canal would encourage other countries to compete for its possession. Philip increased the tolls through the Isthmus, and it became the only legal means of transit for goods from Argentina and the Philippines. Although Spain temporarily had to use Nicaragua when English explorer Francis Drake invaded the Pacific in 1579 and interfered with the Panama route, Philip maintained this policy until his death in 1598, even saying that a canal would directly violate the laws of God, who had created the Isthmus as it was. Although his successor, Philip III, considered a canal route via the Gulf of Darien and the Atrato River in 1616, the idea was quickly abandoned, and the policy of Philip II was firmly entrenched in Spain for the next two hundred years.<sup>6</sup>

British explorers and pirates continued to raid Spanish ships and territories in the 1600s, for mahogany wood as well as gold and silver. Oliver Cromwell conquered Jamaica in 1655. Edward Hume led an expedition across the San Juan River and Lake Nicaragua and took Fort San Carlos and the city of Leon. Here the British first realized the significance of Lake Nicaragua as a potential canal route, and sought to gain control of it. When Spain began counterattacks in that area, Britain moved south again. In 1671, Sir Henry Morgan conquered Porto Bello, which had replaced Nombre de Dios as the main Atlantic port, and also destroyed the city of Panama. To temporarily prevent further aggression, the countries negotiated a treaty which included an article giving the King of England a right to retain forever "any part of America" then in possession of his subjects. This greatly increased Britain's log-cutting trade in Central America, and gained them an alliance with the Miskito Indians, who had been treated cruelly by the Spanish. The area where this tribe was located, between the San Juan River and Cape Honduras, became known as the Mosquito Coast.<sup>7</sup>

#### Initial Interest from America and France

Panama was in a state of decline in the eighteenth century. Although the city of Panama was rebuilt, it ceased to be the main trade route for Spanish treasure. Heavy taxes prevented trade with other colonies and discouraged industry and agriculture. Attacks from runaway slaves continued, and many colonists left for better climates. France made its initial survey for a potential canal in 1735, sending astronomer Charles Maire de la Condamine on a scientific

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<sup>6</sup> DuVal, Cadiz to Cathay, 7-8; Miller, The Isthmian Highway, 8; Core, Trails of Progress, 28, 82; Collins, The Panama Guide, 109; Biesanz, People of Panama, 28-29.

<sup>7</sup> Mary W. Williams, Anglo-American Isthmian Diplomacy, 1815-1915, (Washington, DC: American Historical Association, 1916), 4; DuVal, Cadiz to Cathay, 9, 12-13; Biesanz, People of Panama, 29-31.

expedition to Quito. Returning to France in 1740, Condamine said a canal at Nicaragua would be practical, but nothing was done.<sup>8</sup>

In the Treaty of 1763, Britain agreed to abolish its fortifications in the Honduras Bay area and most of the Spanish territories of Central America. However, with the help of the Indians, who had never been conquered by Spain, the British continued to control the Mosquito Coast, including the mouth of the San Juan River. British hostility in Central America caused Spain to help the colonists in the Revolutionary War while continuing to fight for the Mosquito area. Under Captain Horatio Nelson, the British set sail from Jamaica and reached the San Juan River on 24 March 1780. They captured several Spanish outposts before tropical rains, fevers, and diseases took their toll on the men. After Britain was defeated in the American Revolution, Spain was determined to drive them out of the Mosquito Coast. On 14 July 1786, in a treaty signed at London, Britain agreed to get out of the Mosquito Coast. They kept their woodcutting area in Belize, but were not to engage in other businesses; however, they secretly continued to conduct business with the Miskitos.

American interest in the canal dates back to 1779, when diplomat Benjamin Franklin, while in France, received a letter from French peasant Pierre-Andre Gargaz, who was in prison at the time, asking Franklin to read his manuscript on building canals at Panama and Suez. The canals would reduce the global circumnavigation time from three years to ten months, and establish beneficial trade and money circulation between many different nations. Franklin was so impressed with the manuscript, entitled "A Project for Universal Peace," that when Gargaz was released from prison in 1781, Franklin printed and provided him with a desired number of copies for distribution in France. Thomas Jefferson, who succeeded Franklin as U.S. Minister in Paris, also read Gargaz's manuscript, along with other sources on canal plans. He wrote two letters to Spanish Minister William Carmichael in 1787 and 1788 expressing his interest in obtaining copies of the surveys and reports made on the Isthmus.<sup>9</sup>

#### Revival Under Humboldt

Fresh new interest in the canal was revived early in the nineteenth century by German explorer Alexander von Humboldt. Humboldt explored Spanish America from Peru to Mexico in the years 1799 to 1804. In his Political Essay on the Kingdom of New Spain, published in 1808, he criticized the Panama route, though he never saw it, because of its high mountains, and said that Nicaragua, with its vast water supply, would be the best route. At the end of his travels, Humboldt likely discussed the canal with President Jefferson, whom he visited at the White

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<sup>8</sup> Biesanz, People of Panama, 32-33; DuVal, Cadiz to Cathay, 12.

<sup>9</sup> DuVal, Cadiz to Cathay, 13-19.



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House in 1804. His trip coincided with the journey of Lewis and Clark, whom Jefferson ordered to seek a northwest passage to the Pacific, a route Humboldt also strongly endorsed.

Spain's final chance for a canal came in 1814 when the government endorsed the Nicaraguan route, and a formation of a company to start work. However, revolutionary movements by its colonies ended Spanish hopes for a canal. In 1819, under President Simon Bolivar, the Republic of Colombia, then called New Granada, was founded. Venezuela and Ecuador soon followed, and those countries took over the Isthmian territory in 1823, under the name Central American Confederation.<sup>10</sup>

The Granadan Confederation was interested in building a canal, and proposed Nicaragua and Panama projects with the U.S. in 1825 and 1826. Aaron Palmer of New York agreed to build a canal, but could not get the necessary funding. Bolivar tried to do the project himself, with assistance from French, British, and English engineers, but was unsuccessful. The Granadan Confederation disbanded in 1831, with New Granada retaining the rights to Panama. The Dutch failed in their only attempt to build a canal at this time as well.

American John Lloyd Stephens passed through Nicaragua in 1840 while exploring Mexico, and said Nicaragua would be the perfect place to build a canal, with a cost of \$25 million. He called Nicaragua "an enchanting land of blue lakes and trade winds, towering volcanic mountains, rolling green savannas and grazing cattle."<sup>11</sup>

France became interested in the Panama route by way of the Chagres River in 1838, when New Granada granted the French firm of Augustin Salomon a contract to construct a road or canal across the Isthmus. Humboldt even wrote to Salomon in 1842, expressing his disappointment that a route had still not been firmly established. French engineer Napoleon Garella was sent to Panama for further study in 1843, and recommended an entrance at Limon Bay, again with a cost of \$25 million. While the survey was positive, the cost was too high, and New Granada canceled the contract. Mexico's government investigated the feasibility of the Tehuantepec route in 1824 and 1842, using combinations of a canal, carriage road, or railroad. But these plans failed, like all the others in the early half of the nineteenth century, either due to lack of money, or lack of foresight by people in charge of the surveys.<sup>12</sup>

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<sup>10</sup> David McCullough, The Path Between the Seas: The Creation of the Panama Canal, 1870-1914, (New York: Simon and Schuster, 1977), 28-30; DuVal, Cadiz to Cathay, 21-23.

<sup>11</sup> McCullough, Path Between the Seas, 32.

<sup>12</sup> McCullough, Path Between the Seas, 30-32; DuVal, Cadiz to Cathay, 23-33.

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Gold and the Panama Railroad

The U.S. took the next initiative in the battle for the Isthmus under the administration of President James Polk. Polk's Minister to Central America, Benjamin Bidlack, negotiated a treaty on his own in 1846, in which New Granada guaranteed the U.S. exclusive right of transit across the Isthmus in exchange for New Granada's right of sovereignty there. The treaty was finally ratified in 1848.

Another incident occurred in 1848 that drastically changed the course of Panamanian as well as American history. Gold was discovered in California, and by 1849, thousands of men were crossing the Isthmus every year to seek their fortune. They found boiling heat and blinding rain. The Chagres was filled with heavy green slime, and the Las Cruces Trail was covered with mud. Huts were infested with bugs. Fever, cholera, and dysentery were common. Despite this, many were thrilled with the spectacle of the jungle and the brilliant green mountains. The distance saved by traveling from New York to San Francisco using the Isthmus instead of Cape Horn was eight thousand miles.<sup>13</sup>

The U.S. Congress selected a committee to travel to the Isthmus in 1849. They recommended construction of a railroad, with eventual plans for a canal. On 12 June, the Panama Railroad Company was founded under the direction of John Lloyd Stephens (who had earlier traveled to Nicaragua), William Henry Aspinwall, and Henry Chauncey. Construction began in 1850, and was finished in 1855 at a cost of \$8 million, six times higher than estimated. Almost six thousand workers died, including Stephens in 1852. But the first transcontinental railroad, at forty-seven and a half miles long, was an instant financial windfall. Profits in the first six years of operation exceeded \$7 million. At \$295 a share, the Panama Railroad was the highest-priced stock on the New York Exchange. Over 400,000 people used the railroad in the first ten years.<sup>14</sup>

The United States and England nearly went to war over the Nicaragua route. In 1848, Britain took San Juan Del Norte, at the mouth of the San Juan River, and renamed it Greytown. The U.S. considered this a violation of the Monroe Doctrine of 1823, which considered any European expansion in the Western Hemisphere a threat to American safety and security. A crisis was avoided by a treaty binding the two countries to joint control of any canal built in Central America. The Clayton-Bulwar Treaty, named after U.S. Secretary of State John Clayton and British envoy Sir Henry Lytton Bulwar, was signed in 1850.<sup>15</sup>

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<sup>13</sup> McCullough, Path Between the Seas, 34.

<sup>14</sup> McCullough, Path Between the Seas, 33-37; DuVal, Cadiz to Cathay, 35-39.

<sup>15</sup> McCullough, Path Between the Seas, 38; DuVal, Cadiz to Cathay, 61-62, 460-464.

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### U.S. Progress Toward a Canal

The U.S. Senate on 19 March 1866 resolved the Secretary of the Navy to supply a study of all practical lines of ship canals over the Isthmus. Rear Admiral C.H. Davis reported that Darien was the site to be pursued. In 1869, General Ulysses Grant became President. He had traveled the Isthmus in 1852 while in the Army, and realized its value. Beginning with Navy Commander Thomas O. Selfridge, who led a survey to Darien, Grant ordered seven Central American expeditions between 1870 and 1875. In 1872, Grant appointed the first U.S. Isthmian Canal Commission, which recommended Nicaragua as the ideal route in 1876. Grant's successor, Rutherford B. Hayes, in an 8 March 1880 speech to Congress, declared "The policy of this country is a canal under American control. The United States cannot consent to the surrender of this control to any European power...."<sup>16</sup>

On 15 December 1884, Navy Secretary William E. Chandler ordered A.G. Menocal to survey Nicaragua. Menocal recommended a total of seven locks and a 169 mile canal. In 1887, the Nicaraguan government gave the Nicaragua Canal Commission of New York a concession to began canal excavation. Two years later, the U.S. Congress incorporated the group with the Maritime Canal Company of Nicaragua. Construction began at Greytown on 8 June 1890. Despite initial success, funds were exhausted in three years, and the project was terminated.

Under Ferdinand de Lesseps, who played a large role in building the Suez Canal in 1869, France had begun building a canal at Panama in 1881. This project would fail by 1889, when the U.S. Senate passed a resolution that would look with disapproval on any European government trying to construct a canal across Central America.

With France out of the picture, Congress and President William McKinley continued to thoroughly investigate canal possibilities in Panama and Nicaragua. They also were involved in a diplomatic dispute with Great Britain over Isthmian territory. Secretary of State John Hay and British Ambassador Sir Julian Pauceforte signed a treaty in 1900 that gave the U.S. the right to construct, own, and operate, but not fortify, a canal. This treaty was rejected by Congress, and Hay was forced to renegotiate. On 18 November 1901, a new Hay-Pauceforte Treaty was signed, which removed the constraints of the Clayton-Bulwar Treaty of 1850, and gave the U.S. full authority to defend and govern a canal.<sup>17</sup>

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<sup>16</sup> McCullough, Path Between the Seas, 19-20, 27; DuVal, Cadiz to Cathay, 71-75, 78-80; U.S. Senate, A Chronology of Events Relating to the Panama Canal: Prepared for the Committee on Foreign Relations, (Washington, D.C.: GPO, December 1977), 2, hereafter cited as U.S. Senate, Chronology.

<sup>17</sup> DuVal, Cadiz to Cathay, 83-85, 102, 107, 110-121, 465-467; McCullough, Path Between the Seas, 52-53, 131, 256-259; U.S. Senate, Chronology, 2; Logan Marshall, The Story of the Panama Canal, (New York: L.T. Myers, 1913), 202.

## Roosevelt and the Panamanian Revolution

In September 1901 McKinley was assassinated, and Theodore Roosevelt became President. To Roosevelt, the canal was indispensable, a vital path to the global destiny of the U.S. for the twentieth century. He saw the canal linking American commanding power on the Atlantic and Pacific Oceans. During the first Hay-Paueforte negotiations, while still Governor of New York, Roosevelt wrote to Hay expressing his concern that the treaty did not give the U.S. fortification rights, and that it violated the Monroe Doctrine. While the Isthmian Canal Commission recommended the Nicaragua route in November 1901, the French New Panama Canal Company agreed to sell its assets for \$40 million, and the Commission changed its support to Panama two months later. In 1903, the U.S. signed the Hay-Herran Treaty, negotiated between Hay and Dr. Tomas Herran, Colombian Minister to the U.S., that would have granted the U.S. a 100-year lease on a zone of land ten miles wide to build a Panama Canal. But this treaty was rejected by the Colombian Senate, because it threatened Colombian sovereignty.<sup>18</sup>

Another way to ensure construction of the canal would be the establishment of an independent Panama. Dr. Manuel Amador Guerro and several associates were involved in plotting the course of a Panamanian Revolution. Amador had been elected President of the State of Panama in 1867, then was a doctor at the Santo Tomas Hospital in Panama City and for the Panama Railroad Company. He witnessed a number of revolutionary attempts in Colombia in the late 1800s, and perceived that Panama was ready to seek independence. French engineer Philippe Bunau-Varilla worked under de Lesseps and was a division leader in the French canal plan in the 1880s. He made it his lifelong goal to build a sea-level canal at Panama. By the early years of the new century, he was actively involved in Washington, DC diplomatic circles and was advocating an independent Panama.

On 3 November 1903, Panama declared its independence from Colombia. The American ship Nashville, along with United States forces on both sides of the Isthmus, acted to protect the Panama Railroad according to the 1846 Mallarino-Bidlack Treaty. Colombian troops at Colon were therefore prevented from reaching Panama City. With no intervention by Colombian troops, the revolution succeeded and three days later the United States formally recognized the new republic. On 18 November, the Hay-Bunau-Varilla Treaty granted the United States "in perpetuity the use, occupation, and control" of a ten-mile wide area of land across the Isthmus to construct and defend a canal, with "all the rights, power and authority within the zone...which the United States would possess and exercise if it were the sovereign of the territory."<sup>19</sup> The United

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<sup>18</sup> DuVal, Cadiz to Cathay, 116, 119-121, 148, 174-175, 468-481; McCullough, Path Between the Seas, 246-247, 250, 257, 269; U.S. Senate, Chronology, 2-3.

<sup>19</sup> DuVal, Cadiz to Cathay, 124, 130-131, 138-140, 333-340, 482-492; McCullough, Path Between the Seas, 341-342, 371-377; U.S. Senate, Chronology, 3; Joseph Bucklin Bishop and Farnham Bishop, Goethals: Genius of the Panama Canal, (New York and London: Harper and Brothers Publishers, 1930), 117-119.

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States agreed to pay Panama \$10 million in compensation, and an annuity of \$250,000 per year after canal completion. No Panamanian signed this treaty.

After the Senate ratified the treaty in February 1904, Bunau-Varilla resigned as Minister Plenipotentiary to Panama and returned to France. For him, the treaty was especially gratifying. Along with Ohio Senator Mark Hanna, he had been the strongest advocate of the Panama route. Panama would be 134.5 miles shorter than Nicaragua; it would take less time, twelve hours to thirty-three, to pass through. It had better harbors, required fewer locks, and would cost less. The majority of engineers supported Panama. There were also concerns about the presence of volcanos near the Nicaraguan route. These factors finalized the decision to build at Panama in June 1902, and this decision was further solidified by the Revolution.<sup>20</sup>

### Building the Canal

The French property on the Isthmus was officially turned over to the United States on 4 May 1904. The cities of Colon and Panama were in the Republic, but outside the Canal Zone (Figure 1). Rear Admiral John G. Walker, a retired Navy officer, became chairman of the seven-member Isthmian Canal Commission (ICC) appointed by President Roosevelt. Responsible for the construction of the Panama Canal, this Federal agency reported directly to the Secretary of War and the President of the United States. Major-General George Davis became Governor of the Canal Zone, John Wallace was Chief Engineer, and Dr. William Gorgas was Chief Sanitation Officer. The Commission did not work well together. On 1 April 1905, President Roosevelt directed the Chairman, Chief Engineer, and Canal Zone Governor to constitute an executive committee. In July, Wallace resigned and was replaced by John Stevens. Stevens had been recommended by James T. Hill of Minnesota, whom he worked for as a railroad engineer in 1889.<sup>21</sup>

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<sup>20</sup> DuVal, Cadiz to Cathay, 418-419; U.S. Senate, Chronology, 4; McCullough, Path Between the Seas, 322-324.

<sup>21</sup> McCullough, Path Between the Seas, 407, 421, 449, 457, 459; Suzanne Johnson, "An American Legacy in Panama: A Brief History of the Department of Defense Installations and Properties, The Former Canal Zone, Republic of Panama," (Corozal, Panama: Directorate of Engineering and Housing, United States Army Garrison-Panama, 1995), 12.

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Figure 1. Source: Army Community Service, U.S. Army Garrison-Panama, Corozal, Republic of Panama.

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Stevens moved the administration offices from Panama City to the Culebra Cut, where the largest excavation work was done. Under Wallace, working conditions had deteriorated, and Stevens' first task was cleaning up. He supported Gorgas, who believed yellow fever-carrying mosquitos could be eradicated through proper sanitation, by giving him four thousand workers and an unlimited budget for supplies. The cities of Panama and Colon were fumigated house by house, provided with running water, and streets were cleaned and paved. Entire new communities were established. The yellow fever epidemic was stopped by the end of 1905, but workers were still suffering and dying from malaria, pneumonia, tuberculosis, and intestinal diseases.

Once the yellow fever was contained, Stevens resumed construction. The Panama railroad was essential for transporting dirt, and he devised an elaborate double-tracking plan for dirt trains to be constantly moving in and out of the Culebra Cut. By the end of 1906, there were almost 24,000 workers. White Americans made up the bulk of the skilled laborers, averaging a salary of \$87 per month. Unskilled laborers, mostly Blacks from the Caribbean Islands, were paid ten cents an hour, and worked ten-hour days.<sup>22</sup>

The next decision was the type of canal to be built: sea-level or lock. The sea-level was originally planned, but Stevens was concerned that it would cost \$100 million dollars more and take three or four years longer to build. A lock passage would be wider and safer for ships. The lock proposal was recommended by the Commission in February, approved by the President, and approved by Congress in June. There would be a dam for the Chagres River built at Gatun, nearly a mile and a half long and over a hundred feet high. The lake would be eighty-five feet high. A ship would enter three locks built at the east end of the dam, elevate to the level of the lake, travel twenty-three miles across the lake, then nine miles through the Culebra Cut. At Pedro Miguel there would be a lock and small dam. The ship would be lowered thirty-one feet to a small lake, pass through two locks at La Boca, return to sea-level and head into the Pacific Ocean. With the creation of a Gatun Lake, 164 square miles of jungle would be under water, and a new railroad would have to be built.<sup>23</sup>

In November 1906, Roosevelt went to Panama, becoming the first sitting president to travel outside the United States. At this time 6,000 Americans were working in the Zone. Roosevelt was impressed by progress on the Culebra Cut, in health and sanitation. Although he went in the rainy season, he admired the natural beauty of the tropical land. After his return, he wrote the "Special Message Concerning the Panama Canal" to Congress, including photographs and sketches, and urged the country to take notice. "It is a stupendous work upon which our fellow

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<sup>22</sup> Bishop and Bishop, Goethals, 125-128; McCullough, Path Between the Seas, 448, 457-473, 480.

<sup>23</sup> McCullough, Path Between the Seas, 483-489.

countrymen are engaged in down there on the Isthmus," he said. "No man can see these young, vigorous men energetically doing their duty without a thrill of pride..."<sup>24</sup>

However, by February 1907, within a few weeks of each other, Stevens and Commission Chairman Theodore Shonts resigned. Secretary of War William Howard Taft recommended Major George Washington Goethals to replace Stevens. He was officially approved on 18 February 1907 and given complete authority. Goethals came from West Point and the Corps of Engineers, where he was assistant to the Chief of Engineers, and became a member of the General Staff under Secretary Elihu Root in 1903.

By the end of his first year, several important engineering changes have been made. The bottom of the channel of the Culebra Cut was widened from two hundred to three hundred feet. The lock chambers were enlarged from 95 to 110 feet. A breakwater was planned for the Pacific side to prevent mud from clogging entrance to the Canal. The dam and second set of locks were pulled from Sosa Hill and moved to Miraflores, farther away from the Pacific. The Pacific locks would then be better prepared for a sea attack. Goethals had chiefs running three geographic units, the Atlantic, Central, and Pacific Divisions. He estimated the new railroad would take five years and cost \$9 million. Lieutenant Colonel Harry Foote Hodges was in charge of designing the locks, and was Goethals' second-in-command.<sup>25</sup>

The struggle to dig the Culebra Cut lasted seven years. The most difficult setbacks were the mudslides, particularly at Cucaracha on the east bank. In October 1907, after heavy rains, an avalanche deposited 500,000 cubic yards of mud in the canal. After 1911, when the Cut was deeper and rock formations became unstable, slides were more frequent. Shovels, trains, tracks, and cars would be completely buried. In 1912, four and a half months were spent removing slides. Thirty buildings from the town of Culebra had to be moved back. The uppermost portions of the Cut were dug at an angle to help decrease the pressure. The workers referred to the Cut as "Hell's Gorge."<sup>26</sup>

Work on the locks began in 1909 and took about four years. The bases of the lock chambers were concrete, with steel gates. The walls were a thousand feet long and eighty feet high. Six pairs of chambers were built (to handle two lanes of traffic). Gates were opened and closed by steel struts connected to "bull wheels" twenty feet in diameter, which were geared to an electric motor. The locks were controlled by a central control board.

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<sup>24</sup> Ibid., 492-493, 498-500.

<sup>25</sup> Bishop and Bishop, Goethals, 137-141, 153-156, 193, 204, 211-12; McCullough, Path Between the Seas, 503-511, 539-543.

<sup>26</sup> McCullough, Path Between the Seas, 549-554; Bishop and Bishop, Goethals, 207-209.



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By the summer of 1913, the locks and the Cut were finished. On 26 September at Gatun, water was first turned into the locks. On 10 October, President Woodrow Wilson pressed a button in Washington that relayed a signal to Panama to blow up the Gamboa Dike and fill the Culebra Cut. This act also marked the final stage in the creation of Lake Gatun, the largest man-made lake at that time. In 1914, Wilson disbanded the Isthmian Canal Commission, and named Goethals the first Governor of The Panama Canal. The position of Governor was the head of a civilian agency, but the governor was always a military man, most often from the Army Corps of Engineers. On 15 August, in a small ceremony, the Canal opened when the ship Ancon successfully passed through.<sup>27</sup>

From 1904 to its opening, the Canal had cost \$352 million, and 5,609 workers died. The United States also agreed to pay Colombia \$25 million over disputes from the Panama Revolution, and allowed certain Colombian ships free transit. Normal tolls for the Canal were ninety cents per cargo ton. In September 1915, an avalanche in the Culebra Cut (renamed the Gaillard Cut after Lieutenant Colonel David Gaillard, U.S. Army Corps of Engineers, who served as Chief of the Central Division under Goethals) closed the Canal for seven months. World War I in Europe dampened enthusiasm for the Canal in the first few years, but by 1924, the Canal was handling more than five thousand ships per year. Its creation has to be considered one of mankind's greatest engineering and construction accomplishments.<sup>28</sup>

### Construction for Canal Zone Communities

From the beginning of the Canal project, ancillary construction was necessary to provide for the social and business needs of the enterprise. Housing, offices, health care facilities, recreational facilities, retail establishments, public safety; all aspects of life represented some need for shelter. The Federal agency responsible for construction of the Canal also provided for the building needs. During construction of the Canal, this agency was the Isthmian Canal Commission. Upon completion of the Canal in 1914, this agency was disbanded and The Panama Canal was created to operate and maintain the Canal and administer the Canal Zone. In 1951, the agency was reorganized as the Panama Canal Company, and remained as such until the Panama Canal Treaty of 1977. Upon treaty implementation, the Panama Canal Company was disestablished and replaced by the Panama Canal Commission, a joint U.S.-Panamanian agency. This administrative body will remain in place until the end of the U.S. presence in Panama on 31 December 1999.

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<sup>27</sup> McCullough, Path Between the Seas, 594-599, 604-609; Bishop and Bishop, Goethals, 260-264; Herbert and Mary Knapp, Red, White, and Blue Paradise: The American Canal Zone in Panama, (San Diego, CA: Harcourt Brace Jovanovich, Publishers, 1984), 124; Mack, The Land Divided, 513; U.S. Senate, Chronology, 5.

<sup>28</sup> McCullough, Path Between the Seas, 610-614; Bishop and Bishop, Goethals, 267-268; U.S. Senate, Chronology, 5.

Chief Engineer John F. Wallace established the first ICC architectural department 23 July 1904, with M. O. Johnson as Chief Architect.<sup>29</sup> Johnson died of Yellow Fever in the spring of 1905, and A. M. Burt became the supervising architect and head of the Bureau of Architecture and Building, with P. O. Wright as assistant supervising architect.<sup>30</sup> In September 1906, the name was changed to the Division of Building Construction.<sup>31</sup> On 1 August 1908, the Division of Building Construction was abolished, and its duties and personnel were reassigned to the Division of Engineers and the Chief Quartermaster. The drafting staff were transferred to the Chief Engineer's office.<sup>32</sup> It was during this early period that the majority of temporary quarters were designed and constructed, being designated as "type houses." By 1907, there were twenty-two different types ranging from a 1-story, 1-family married quarters to a 2-story, 24-room bachelor quarters.<sup>33</sup>

Every aspect of life for the employees of the ICC (and the later administrative organizations) was defined by their status. A system of racial discrimination prevailed which recognized two main classes of employees based upon the standard used for their pay. "Gold" employees were skilled workers (almost always white Americans), and "silver" employees who provided unskilled labor and were predominantly black West Indians. These distinctions effectively segregated the work force and their families. In some cases separate - but definitely not equal - facilities were built for both groups, and separate waiting lines were established for shopping. Hospital wards were separated by race, and the children of "gold" and "silver" employees went to different schools. The "silver" construction towns provided crude, common barracks and mess facilities for workers, as well as a few family quarters. As a result, the majority of "silver" married workers had to rely upon renting tenements in Colon or Panama City, or simply setting up slums in the jungle with scavenged materials. "Gold" towns possessed housing specifically designed to be comfortable and equipped to withstand the tropical conditions. These towns were also equipped with clubhouses, bandstands, hotels, and ballparks, Y.M.C.A.s and churches.<sup>34</sup> The full range of

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<sup>29</sup> Canal Record, 11 December 1907, 117; McCullough, Path Between the Seas, 449.

<sup>30</sup> Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission for the Year Ending December 1, 1905, (Washington, D.C.: GPO, 1905), 147; McCullough, Path Between the Seas, 451.

<sup>31</sup> Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission for the Year Ending December 1, 1906, (Washington, D.C.: GPO, 1906) 99.

<sup>32</sup> Canal Record, 22 July 1908, 375.

<sup>33</sup> "Type Houses," January 1907, File 13-A-8, Part 1, General Records 1914-34, Records of The Panama Canal, 1914-1950, Record Group 185, National Archives, Washington, DC.

<sup>34</sup> McCullough, Path Between the Seas, 472, 478, 576; Stephen Frenkel, "Geography, Empire, and Environmental Determinism," Geographical Review 82, (April 1992): 147-148.

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ancillary structures required to support the creation of the Panama Canal was enormous. In 1908, for example, the Annual Report contains this accounting:<sup>35</sup>

Among the more important items of construction performed by this division [Building Division] during the year are the following: 33 hospital buildings, 37 storehouses, 7 fire department buildings, 9 laborers' bath houses, 26 laborers' range closets, 6 fumigation houses, 5 corrals, 9 schoolhouses, 5 commissaries, 1 clubhouse, 4 post-offices, 9 office buildings, 2 lodge halls, 18 standard laborers' barracks, 5 band stands, 2 Gallego mess halls, 5 hotels, 4 jails, 8 powder and detonator houses, 4 markets, 35 shop buildings, 8 laborers' washhouses, 3 bridges, and 200 type quarters for "gold" employees.

Sanitary guidelines and climate considerations were incorporated into the design of Canal Zone structures from the beginning, especially the facilities constructed for the "gold" employees. "The French plans and buildings furnished some valuable features of tropical architecture. These were fully appreciated by the Architectural Department, and were later incorporated in the design of buildings erected by the Commission."<sup>36</sup> It was decided that a style of architecture was needed where all buildings were constructed of wood with "plenty of openings for ventilation; and every opening, including verandas, must be provided with fine copper screening in order to, just as far as practicable, exclude all mosquitos."<sup>37</sup>

Required building materials had to stand shipment from the States with little or no damage. Wood and concrete became the main structural components, with corrugated, galvanized iron for roofing. Concrete footings supported wood foundation posts raising the structures off the ground. Walls were wooden, often with exposed studs on the interior, as empty space between the walls created by an interior sheathing provided a breeding ground for rats.

Where available, the houses were connected to sewer and electric lines. The need for electricity was perhaps higher than in a more temperate environment, because of the problems with mold engendered by the tropics. Typical closets provided an ideal environment for the growth of mold, so the "better class" of houses included a "dry room" which could be closed up tightly and in which an electric bulb burned continuously. This problem continued until air conditioning was installed between 1957 and 1960. According to a longtime Canal resident, "...if you left your shoes under the bed for a couple of days, they sprouted beards of mold. Shoes had to be

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<sup>35</sup> Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission for the Year Ended June 30, 1908, (Washington, D.C.: GPO, 1909), 93.

<sup>36</sup> Canal Record, 11 December 1907, 117.

<sup>37</sup> Isthmian Canal Commission, Annual Report, 1906, 100-101.

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kept in 'dry closets' where light bulbs burned day and night. Light bulbs burned inside 'dry cupboards,' too, and hung on extension cords inside pianos."<sup>38</sup>

This construction camp style of architecture was to predominate almost exclusively until permanent communities were begun after completion of the Canal. This style was arrived at through efforts to develop sanitary and comfortable housing, and presented a distinctive appearance. Arriving in the construction town of Culebra in 1907, Mrs. Gaillard described the upper echelon housing as "...an enormous cube, entirely enclosed in wire screening and lifted high on spindling foundations."<sup>39</sup> The grouping of houses, bare of screening foliage due to mosquito eradication efforts, caused her to remark on these "...houses as queer and ungainly as ours which stood here and there on the hillside like gargantuan bird cages!"<sup>40</sup>

As Canal construction drew to a close, the Isthmian Canal Commission began to plan for the communities necessary to permanently house and maintain the operating work force. In 1912, the ICC hired Austin W. Lord of New York to direct the design aspects of the permanent construction. At that time, Lord was the senior member of the firm Lord, Hewlett, and Tallant concurrent with being head of the Architecture Department at Columbia University. He spent part of July and August 1912 on the Isthmus studying local conditions and meeting with Canal officials. It was decided to present a unified scheme where all permanent buildings would be of the same style.<sup>41</sup>

Mario J. Schiavoni was hired as Lord's assistant on the Isthmus. General drawings were produced in the New York office, and working drawings were completed in Panama. Lord's plans were primarily focused on the Administration Building and the planned "gold" town of Balboa. Among the plans prepared by his office were official and permanent quarters, a post office, schoolhouse, hotel, social hall, fire and police stations, dispensary, church, telephone building, clubhouse, and commissary store. Landscape architect William L. Phillips was responsible for permanent townsites, streets, parks, and other necessary features.<sup>42</sup>

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<sup>38</sup> Knapp and Knapp, Red, White, and Blue Paradise, 42.

<sup>39</sup> Katherine Gaillard, manuscript, published as "Katherine Gaillard writes of Canal construction days, part 2: first impressions," Panama Canal Spillway, n.d.

<sup>40</sup> Ibid.

<sup>41</sup> Canal Record, 7 August 1912, 397.

<sup>42</sup> Canal Record, 7 August 1912, 397; Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission for the Year Ended June 30, 1913, (Washington, D.C.: GPO, 1913), 21; Canal Record, 18 June 1913, 361.

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This organization continued until August 1913, when the arrangement with Lord ended and Schiavoni was placed in charge of the designs for the primary company town of Balboa.<sup>43</sup> He resigned on 5 December 1913, and was succeeded by Samuel M. Hitt as architect.<sup>44</sup> The buildings they designed had to meet sanitary regulations such as being "rat proof" and well-screened. For durability and economic concerns, it was decided to construct them from reinforced concrete with clay tile roofs.<sup>45</sup> This red and white color scheme, along with the common design elements of large screened porches, numerous windows, and some restrained Mediterranean, Spanish Colonial Revival or Mission stylistic devices provide a continuity of appearance from one end of the Canal to the other.

### Fortifying the Canal

The Hay-Paueforte and Hay-Bunau-Varilla treaties implied but did not explicitly give the United States the right to fortify the Canal Zone. Central to America's decision to fortify was Article Three of the Hay-Bunau-Varilla treaty, which gave the United States all powers, rights, and authority in the Zone. Panama protested in 1904 when the United States government used this sovereignty in establishing ports of entry, customhouses, tariffs, and post offices in the Zone. An amendment giving some concessions to Panama in those areas was made after Secretary of War Taft, George Goethals, and other Army leaders visited the Isthmus in November 1904 to determine questions relating to possible fortifications. The amendment was supposed to be in effect only during the construction period, but it lasted until 1924, and efforts for a new treaty were unsuccessful.

The debate over Canal fortification continued until 1911, when the House of Representatives made a \$2 million appropriation for that purpose. The following year they added \$1 million for gun and mortar batteries and \$200,000 for land defenses. Construction began on 7 August 1911 under Sydney Williamson, Goethals' Chief of the Pacific Division, and on 1 January 1912, Goethals' son, Lieutenant George R. Goethals, was put in charge of fortification work. The no longer needed construction towns of Empire and Culebra were used for the Army garrisons. There were large forts with gun batteries built at each end of the Canal, with field work for six

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<sup>43</sup> U.S. Senate, Panama Canal: Message From the President of the United States Transmitting a Report by the Commission of Fine Arts in Relation to the Artistic Structure of the Panama Canal, 63rd Cong., 1st sess., 1913, S. Doc. 146, 13.

<sup>44</sup> Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission and The Panama Canal for the Fiscal Year Ended June 30, 1914, (Washington, D.C.: GPO, 1914), 311.

<sup>45</sup> The Panama Canal, Annual Report of the Governor of the Panama Canal for the Fiscal Year Ended June 30, 1915, (Washington, D.C.: GPO, 1915), 32, 62.; Canal Record, 18 June 1913, 361; The Panama Canal, Annual Report of the Governor of the Panama Canal for the Fiscal Year Ended June 30, 1916, (Washington, D.C.: GPO, 1916), 285; Johnson, "An American Legacy in Panama," 20.

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thousand mobile force troops (infantry, cavalry, engineer, signal, and field artillery). The work of The Panama Canal staff increased significantly with the 1915 military appropriation of \$1,290,000, and subsequent assignment of Army barracks and quarters construction. All design and construction work for Army post buildings was assigned to The Panama Canal. Much of the early quarters construction undertaken by The Panama Canal for the Army utilized existing "type house" designs. By June 1915, almost \$15 million had been spent on fortifying the Canal, including the locks and dams. Military reservations were officially designated on 18 September 1917 as Fort Grant, Fort Amador, Fort Sherman, Fort Randolph, and Fort de Lesseps.<sup>46</sup> That same year The Panama Canal designers were asked "...to furnish preliminary plans and estimates for cantonment construction for Army troops and for the proposed permanent posts for mobile troops on the Canal Zone."<sup>47</sup>

This request developed from the investigation and findings of an Army Board of Officers convened to recommend post locations for the troops in the Canal Zone, and to recommend the type and character of buildings required. The Board members represented the Infantry, Engineer Corps, Cavalry, Medical Corps, and Field Artillery. In their report, dated 28 August 1917, the Board recommended placing one brigade of infantry at Gatun, and all other mobile force troops on the Pacific side. There, they supported the location of one infantry brigade at Miraflores Dump, another adjacent to the Curundu River, and one artillery brigade and one cavalry regiment south of the Diablo Ridge. Corozal was the location recommended for the sanitary troops, the Signal Corps troops, and the Engineer regiment, as well as for the main supply depot. Quarry Heights (created on the site of the former Ancon Quarry) would serve as department and division headquarters.<sup>48</sup>

The placement of troops on the Isthmus did not wait for the construction of military reservations. As early as the 1850s, Marines had been periodically called in protect the railroad and other American interests. Marines were landed to keep the Panama Railroad open during the revolution. A Marine detachment remained until January 1914, and at the end consisted of 12 officers and 375 enlisted men. The first permanent Army troops (Tenth Infantry) arrived in

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<sup>46</sup> Marshall, Story of the Panama Canal, 202-203; Bishop and Bishop, Goethals, 132, 221; Mack, The Land Divided, 512-513; Frederic J. Haskin, The Panama Canal, (Garden City, NY: Doubleday, Page & Company, 1913), 283-284; The Panama Canal, Annual Report 1915, 31-32; George M. Wells, Resident Engineer, The Panama Canal to Governor, The Panama Canal, January 27, 1916, File 13-U-2/25, Part 2, January 1, 1916-April 30, 1934, General Records 1914-34, Records of The Panama Canal, 1914-1950, Record Group 185, National Archives, Washington, DC.

<sup>47</sup> The Panama Canal, Annual Report of the Governor of The Panama Canal for the Fiscal Year Ended June 30, 1917, (Washington, D.C.: GPO, 1917), 75.

<sup>48</sup> Board of Officers to Brigadier General A. Cronkhite, U.S.A., August 28, 1917, File 13-U-2/25, Part 2, January 1, 1916-April 30, 1934, General Records 1914-34, Records of The Panama Canal, 1914-1950, Record Group 185, National Archives, Washington, DC.

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October 1911 and were stationed at Camp E. S. Otis in Empire. Three companies of the Coast Artillery Corps arrived on the Isthmus September 1914 and were in temporary quarters at Fort Amador and Fort Sherman by November. That same month the Fifth Infantry arrived with several members of the Medical Corps and the Quartermaster Corps, and the regiment was quartered at Empire. Continued arrivals placed the troop strength on the Canal Zone at approximately 5,000 when the United States entered World War I.<sup>49</sup> Authority over the Panama Canal and the Canal Zone was transferred from the Canal Zone Governor to the commanding general of the U.S. Army forces in the Canal Zone by President Woodrow Wilson in a 9 April 1917 Executive Order.<sup>50</sup> An additional Executive Order was used to proclaim the neutrality of the Canal on 23 May 1917.<sup>51</sup>

A consolidated command called United States Troops, Panama Canal Zone, had been put into place on 6 January 1915 under Brig. Gen. C. R. Edwards, as part of the Eastern Department. Initially located at Ancon, the headquarters were moved to Quarry Heights in 1916. A separate geographical department was created 1 July 1917 and named the Panama Canal Department of the United States Army. Also headquartered at Quarry Heights, the Department was first commanded by Brigadier General Cronkhite.<sup>52</sup> The war passed quietly enough in the Canal Zone, and control of the Canal was returned to the Governor at the war's end.

For the Panama Canal Department, the inter-war years provided an opportunity to increase defensive strength by creating permanent posts and upgrading defenses against the growing threat of air attack. By late 1920, the Army aviation base of France Field, and the infantry bases of Fort Clayton (Pacific) and Fort Davis (Atlantic) were in place and manned. A Pacific side airfield (Albrook Field) was constructed in 1931.<sup>53</sup>

When Canal defense requirements were first considered, the threat to be countered was primarily a naval one. Armament and fortifications were planned to repel a frontal naval assault and landing. As aviation technology developed, aerial attacks were perceived as a growing threat,

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<sup>49</sup> "The Army and Navy: The military and naval activities on the Canal Zone are important elements of the Canal enterprise," in Panama Canal: Twenty-Fifth Anniversary, 1914-1939, (Mount Hope, Canal Zone: The Panama Canal Press, 1939), 93-94.

<sup>50</sup> Dolores De Mena, "History of the United States Army in the Panama Canal Area," Unpublished manuscript, USARSO History Office, Fort Clayton, Panama, 1994, 4.

<sup>51</sup> Canal Record, 13 June 1917, 515.

<sup>52</sup> "The Army and Navy," 94; John R. Baldwin, "History of the Panama Canal Department," Infantry Journal 26 (April 1925): 367-368; De Mena, "History of the United States Army in the Panama Canal Area," 4.

<sup>53</sup> Baldwin, "History of the Panama Canal Department," 369; De Mena, "History of the United States Army in the Panama Canal Area," 4-6.

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and steps were taken to counteract it. The Army Air forces in the Canal Zone were implemented to "gain and maintain sufficient air superiority to secure the Canal and its accessories against an air attack, to observe fire for the Coast and Field Artillery, to cooperate with the Infantry, to attack any enemy land or naval forces and to cooperate with the Navy in the execution of its mission."<sup>54</sup> From an initial complement in March 1917 of 2 officers, 51 enlisted men and 2 Curtis R-4 planes, the air defenses of the Panama Canal Department were expanded in the inter-war period. France Field was constructed near the Atlantic terminus city of Colon and by 1925 was staffed with 38 planes, 57 officers and 623 enlisted men.<sup>55</sup> This same year saw the Coast Artillery District abolished and Coast Defense units organized into regiments with separate anti-aircraft batteries.

In 1932, the Department was divided into Atlantic and Pacific sectors. The Atlantic Sector contained France Field and Forts Sherman, Randolph, Davis, and de Lesseps, while Forts Amador, Clayton, and Kobbe, Albrook Field, the Post of Corozal, and the Panama Air Depot were located in the Pacific Sector.<sup>56</sup> Headquarters remained at Quarry Heights. In January 1934, the Department consisted of 419 officers and 8,884 enlisted men. This manpower level was considered to be restrictive, and by 1936 enlisted strength had increased to 12,990.<sup>57</sup>

Diplomatic issues continued to be negotiated between Panama and the United States. The Hull-Alfaro Treaty, signed on 2 March 1936, helped settle differences over the devaluing Panama dollar and the Canal annuity payments. It guaranteed joint action and consultation between the countries in times of emergency. The United States also gave up the right to intervene in Panama to maintain public order. After debate in the United States that it did not adequately protect American interests in the area, the Senate ratified it three years later.<sup>58</sup>

As war broke out in Europe, several efforts were underway in the Canal Zone to heighten defenses. One of these efforts had both defensive and economic justifications. The original Canal designers were aware that transit capacity would need to be increased in the future, both in the size and number of ships able to transit at any one time. After several years of military and civilian study, Congress authorized the construction of an additional set of locks in 1939.

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<sup>54</sup> T. S. Voss, "The Army Air Service," Infantry Journal 26, (April 1925): 417.

<sup>55</sup> Ibid.

<sup>56</sup> Panama Canal Department Historical Section, History of the Panama Canal Department, vol. 1, Introduction and Historical Background 1903-1939 (n.p., 1949), 48; "The Army and Navy," 94.

<sup>57</sup> Panama Canal Department, vol. 1, Introduction and Historical Background 1903-1939, 49-50.

<sup>58</sup> U.S. Senate, Background Documents Relating to the Panama Canal, Committee on Foreign Relations, (Washington, D.C.: GPO, 1977), 972-975, hereafter cited as U.S. Senate, Background Documents; U.S. Senate, Chronology, 4-5.



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Known as the "Third Locks Project," new, larger locks would be constructed near the existing ones at Gatun, Pedro Miguel, and Miraflores to increase capacity. For defense purposes, they would be built some distance away (1,500 to 3,000 feet) and connected to the existing locks by approach channels. An initial appropriation of \$15,000,000 was made through the War Department Civil Appropriations Act of 1941. The total cost was estimated at \$277,000,000. The project was handled by the newly created Special Engineering Division of the Department of Operation and Maintenance who worked in close cooperation with existing Panama Canal organizations. Canal forces had been producing plans for the design and construction and selecting potential key employees in the United States since the 1939 authorization. Among the first orders of business was the building of three new construction towns (Caecal [Cocoli], Diablo Heights, and Margarita) for the estimated 6,300 employees and family members associated with the Third Locks Project.<sup>59</sup>

Excavation at the Pacific end of what would be the approach channel to the new Miraflores lock was begun on 1 July 1940. The new locks were designed to be used by the 58,000 ton *Montana* class battleships on order for the Navy. As the threat of war heated up, this consideration soon outweighed those of commerce. Upon the United States' entry into the war, continuation of the project was uncertain. There was strong Navy support for completing the project as soon as possible to accommodate the warships due in late 1945. Through a series of meetings held in January 1942, the War Department decided to accept the Navy position and to press for rapid completion. Some military officers, however, felt the extra locks only provided another target for air attack. Several months later circumstances changed when the Navy indefinitely postponed the battleship construction program. As a result of these factors, the War Department, the Navy, and the President all concurred in a decision to halt almost all work on the third locks, effectively canceling the project.<sup>60</sup>

As World War II approached, Canal Zone Army installations were reinforced by increasing the troop strength in Panama from 13,451 in 1939 to 31,400 by the time of the United States' entry in December 1941. Housing these reinforcements constituted only part of a large construction program, however, as some troops arrived before construction had begun, housing was given the highest priority. Congress appropriated \$50,000,000 in June 1939. Subsequent contract discussions delayed calling for bids until March 1940. In the meantime, soldiers cleared vegetation, prepared sites, and even put in footings. Once begun, actual construction was swift, as it was essential to get men and materiel out of tents and into buildings as quickly as possible.

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<sup>59</sup> The Panama Canal, The Third Locks Project, (Canal Zone, Panama: The Panama Canal, 1941), 1-4; John Hannaman, interview by Susan Enscoe, 8 February 1994, Directorate of Engineering and Housing, Chief, Operations Division, Corozal, Panama.

<sup>60</sup> Stetson Conn, Rose C. Engelman, and Byron Fairchild, The Western Hemisphere: Guarding the United States and Its Outposts, vol. 12 of United States Army in World War II, ed. Stetson Conn, (Washington, D.C.: GPO, 1964), 319-321.

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Even so, the job was tremendous and every available soldier was detailed to some aspect of construction. There was a severe shortage of civilian labor due to the competing demand for workers on the Third Locks project, and the additional labor force required only increased the ongoing housing shortage.<sup>61</sup> Due to the severe time constraints, much of the new construction was of a temporary nature. Commonly, this resulted in the use of existing building plans, but the substitution of readily available, less expensive, and less labor-intensive construction materials. Designs were stripped down to the essentials, and all ornamental details were eliminated. Temporary structures were less durable, and were often meant to be easily disassembled and re-erected elsewhere.

Emergency measures were initiated in the last days of August 1939, and in addition to troop build-up, included anti-sabotage measures and a change of Canal authority. The Army garrison was given the mission of "protecting the Canal against sabotage and of defending it from positions within the Canal Zone."<sup>62</sup> The Navy was tasked to provide offshore defense, provide armed guards for ships transiting the Canal, and maintain a harbor patrol at both ends of the Canal.<sup>63</sup> As early as 5 September 1939, an Executive Order was issued transferring jurisdiction and authority over the Canal and the Canal Zone to the Army's Panama Canal Department.<sup>64</sup> Eventually, photography of Canal installations was banned for the duration, mines were placed at both entrances to the Canal, low-altitude barrage balloons were placed over the locks with anti-submarine and torpedo nets placed in front of the locks, and chemical smoke pots were positioned throughout a sixty square mile area. The massive guns and batteries on military installations at either end of the Canal were prepared for use. The 6 to 16 inch guns were housed in 11 Atlantic and 12 Pacific batteries, and had a range up to 25 miles. To protect against air attack, anti-aircraft batteries were put in place across the Zone and two antiaircraft detachments were sent in September 1939. Two long-range radar stations were also established that autumn. The main runway at Albrook Field was improved to allow deployment of the more modern bombers which had arrived in June 1939. Military dependents were evacuated to the United States by October 1941.<sup>65</sup>

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<sup>61</sup> Susan Harp, "Panama Canal Defense Vital During Second World War," Panama Canal Spillway, 2 July 1993; Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 309; Panama Canal Department Historical Section, History of the Panama Canal Department, vol. 2, Preparation for War 1939-1941 (n.p., 1949), 53, 67.

<sup>62</sup> Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 302.

<sup>63</sup> Ibid., 302-303.

<sup>64</sup> Harp, "Panama Canal Defense Vital During Second World War," 2 July 1993.

<sup>65</sup> Harp, "Panama Canal Defense Vital During Second World War," 2 July 1993 and 5 November 1993; Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 304, 310-316.

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Also around 1939, the Panama Canal Department commander began an effort to secure **additional defense sites** outside the Canal Zone in the Republic of Panama, primarily for **airfields**. Eventually, dozens of sites were requested, but action on this request ran into **diplomatic trouble** between the United States and Panama. The primary problems were leasing **versus** buying the sites, and the limits of United States defense authority as defined in the as-yet **unratified** 1936 Hull-Alfaro Treaty. The Treaty was finally ratified on 17 April 1939, and negotiations continued for the additional defense sites even as funding was allocated to lease them from the Panamanian government. An agreement was reached on 21 March 1941 to allow United States forces to acquire sites and begin use before final formal approval. On 18 May 1942, the two countries signed the Defense Sites Agreement, in which the United States would build 134 bases leased from Panama to use until one year after the end of the war.<sup>66</sup>

In 1941, a major command reorganization was precipitated by the United States' taking into protective custody the British possessions (and prospective base sites) of Jamaica, Antigua, St. Lucia, Trinidad, and British Guiana. To administer these new bases, and to quell issues of command extent between the various Army and Navy forces in the area, a theater command was established. The Caribbean Defense Command was officially activated on 10 February 1941, under the command of General Daniel Van Voorhis, then the commander of the Panama Canal Department. The Caribbean Defense Command was initially set up as strictly Army, and coordination with Navy operations was by "mutual cooperation." A separate command, the Caribbean Air Force, was established for air defense about the same time. General Frank M. Andrews succeeded General Van Voorhis in August 1941.<sup>67</sup>

The Army and Navy personnel in Panama had been on full alert since midsummer 1941. The first immediate effects of the United States' December entry into the war were ones of command structure and reinforcements. The first order of business was to create a unified command through which the Army and Navy could be coordinated. President Roosevelt placed the Army in charge of the Panama sector, and the Navy in charge of the more distant Caribbean Coastal Frontier on Friday, 12 December. General Andrews thus became commander of the Army and Navy on 18 December.<sup>68</sup> Both air and ground forces were heavily augmented over the next two months, with the Panama garrison strength reaching 39,000 by the end of December, and rising to 47,600 by the end of January 1942.<sup>69</sup>

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<sup>66</sup> Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 306-309, 344-348.

<sup>67</sup> Ibid., 327-335.

<sup>68</sup> Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 409-412; Panama Canal Department Historical Section, History of the Panama Canal Department, vol. 3, The War Period 1941-1945, (n.p., 1949), 1-3.

<sup>69</sup> Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 412.

For people living and working in the Canal Zone, World War II was "a time of perceived danger during which the movement of materiel, troops, and supplies through the waterway was a critical part of the war effort."<sup>70</sup> While Panama and the Canal both escaped enemy attack, a damaging U-boat campaign was carried out against shipping in the Caribbean. From February through December 1942, some 270 ships in the area were sunk by U-boats.<sup>71</sup> Caribbean Defense Command peak strength of 119,000 was reached in December 1942. Of these, over half were stationed in Panama to protect the Canal from attack or sabotage.<sup>72</sup> By mid-summer 1943, the U-boat threat was receding due to increased effectiveness of the theater's antisubmarine forces, the effects of Allied victories in other waters, and the shift of U-boats away from the Caribbean.<sup>73</sup>

With the threat of Canal attack diminishing, the reduction of troop strength became a viable option. Downsizing was begun in January 1943, and continued until the end of the war. From a peak of 119,000, Army forces had dropped to 91,000 by the end of 1943. When the war in Europe ended in May 1945, Caribbean Defense Command strength was down to 67,500.<sup>74</sup> Wartime defenses, including large artillery guns, landing fields, and mine fields were removed as the military returned to a peacetime defensive position. The Caribbean Defense Command was reorganized into the U.S. Army Caribbean and the Caribbean Command (a unified authority over the Army, Navy, and Air Force components).<sup>75</sup> This command structure would last until 1963, when the Caribbean Command was redesignated as the United States Southern Command (USSOUTHCOM), and the Army component as the United States Army Forces Southern Command, and later the United States Army South (USARSO).<sup>76</sup>

In October 1947, the United States tried to negotiate an agreement for continued occupation of thirteen auxiliary World War II sites for five more years, and the military air base at Rio Hato, seventy miles west of Panama City, for ten to twenty years. Two months later, with pressure from the Panamanian Communist Party and student anti-American demonstrations going on, the Panamanian Assembly unanimously rejected the agreement, and the United States agreed to

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<sup>70</sup> Harp, "Panama Canal Defense Vital During Second World War," 2 July 1993.

<sup>71</sup> Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 424.

<sup>72</sup> Ibid., 414.

<sup>73</sup> Ibid., 437.

<sup>74</sup> Ibid., 441.

<sup>75</sup> De Mena, "History of the United States Army in the Panama Canal Area," 9.

<sup>76</sup> Ibid., 11.

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evacuate the remaining fourteen sites immediately. With national elections coming up in 1948, members wanted to reduce American influence as much as possible to appease the voters.<sup>77</sup>

In the 1950s, the United States made several concessions to the Panamanians: a single pay scale for American and Panamanian workers was established; Panama was allowed to fly its flag along with the American flag at several designated sites in the Zone and on ships traveling through the Canal; Spanish became an officially recognized language in the Zone along with English; and Panama was given more money from Canal toll collections. The United States was given 19,000 acres in the Rio Hato area for military training. Panama, however, twice rejected requests by the U.S. to deploy Nike missiles in 1956 and 1958. Two ground-to-air HAWK-AW missile batteries were deployed in 1960 at Fort Sherman and Fort Amador. Growing nationalistic sentiment expressed in student demonstrations in 1955, 1958, 1959, and 1964 helped to finally convince the United States to renegotiate the Hay-Bunau-Varilla Treaty.<sup>78</sup>

In 1974, under chief negotiator Ellsworth Bunker, the United States agreed in principle to give the Panama Canal and the Canal Zone back to Panama. At this point there were about 46,000 people living in the Canal Zone. The majority (30,000) were active-duty military, their dependents, and civilian employees. The Panama Canal Company had roughly 10,000 American employees and dependents. During the administrations of President Jimmy Carter and General Omar Torrijos, two treaties were negotiated. The first, called the Panama Canal Treaty, abolished the Canal Zone and returned the territory to Panama, with the United States having the authority to manage, operate, and defend the Canal with increasing participation by the Republic of Panama until 31 December 1999. At noon on that day, Panama will assume control of the area and responsibility for the Canal as the United States' presence ceases. The second treaty gave the United States the permanent right to defend, jointly with the Republic of Panama, the neutrality of the Canal. The treaties were signed on 7 September 1977 by Presidents Carter and Torrijos at the Organization of American States. After months of heated debate, the United

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<sup>77</sup> U.S. Senate, Background Documents, 921-923, 975-979; U.S. Senate, Chronology, 6; Almon R. Wright, "Defense Sites Negotiations between the United States and Panama, 1936-1948," Department of State Bulletin, vol. 27, 11 August 1952, 212-217; Paul Ryan, The Panama Controversy: U.S. Diplomacy and Defense Interests, (Stanford, CA: Hoover Institution Press, 1977), 28-31; Paolo E. Coletta, ed., United States Navy and Marine Corps Bases Overseas, (Westport, CT: Greenwood Press, 1985), 259; U.S. Department of the Navy, Naval Historical Center, Washington, DC, Operational Archives.

<sup>78</sup> U.S. Senate, Chronology, 7-9; U.S. House, Panama Canal, 1971: Hearings before the Subcommittee on Inter-American Affairs of the Committee on Foreign Affairs, (Washington, D.C.: GPO, 1971), 18, 30-31, 35-37, 114; Knapp and Knapp, Red, White, and Blue Paradise, 54-59; William Jorden, Panama Odyssey, (Austin, TX: University of Texas Press, 1984), 38-49; Coletta, Navy and Marine Corps Bases Overseas, 259-260.

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States Senate passed the two treaties in March and April of 1978, each by a vote of 68 to 32, drastically changing American military and political influence in Panama.<sup>79</sup>

Implemented on 1 October 1979, the Panama Canal Treaty impacted the United States Army forces in Panama through the immediate turnover of some military facilities, the relocation of other facilities, and the undertaking of previous Panama Canal Company responsibilities. Some facilities at Fort Amador were turned over immediately, necessitating the relocation of U.S. Army headquarters to Fort Clayton. Facilities were also shifted from the Albrook Army Airfield to Air Force installations in the former Canal Zone. The Department of Defense became responsible for the education, health care, and postal services previously run by the Panama Canal Company. Since 1979, the turnover of military facilities has continued and will proceed until the expiration of the treaty at 12 noon on 31 December 1999.<sup>80</sup>

### Quarry Heights

Rising 654 feet above sea level, Ancon Hill is a prominent feature at the Pacific terminus of the Canal. It was, however, valued as more than a landmark by the builders of the Panama Canal. The rock it contained provided a necessary resource for Canal construction. The quarrying of this material began in 1909, and it was put to use in concrete for the Pedro Miguel and Miraflores Locks.<sup>81</sup> Its layout was described as "three facings, or levels, upon which will be constructed a system of tracks and switch backs reaching all parts of the quarry."<sup>82</sup> Before being closed on 31 October 1914, the Ancon quarry had produced 3,245,000 cubic yards of rock.<sup>83</sup>

The main terrace had been set aside for a Marine reservation at least by the beginning of 1913. Plans were drawn up for a permanent installation with barracks and officers' housing for

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<sup>79</sup> U.S. Senate, Chronology, 9-36; U.S. Senate, Defense, Maintenance and Operation of the Panama Canal, Including Administration and Government of the Canal Zone -- Hearings before the Committee on Armed Services, (Washington, DC: GPO, 1978), 62-63, 83-84, 139, 164-165, 258-259; Coletta, 260-261; Knapp and Knapp, Red, White, and Blue Paradise, 47; Robert A. Pastor, "The Carter Administration and Latin America: A Test of Principle," Occasional Paper Series, Volume II, Number 3, (Atlanta: The Carter Center of Emory University, 1992), 11-13.

<sup>80</sup> De Mena, "History of the United States Army in the Panama Canal Area," 13.

<sup>81</sup> "Quarry Heights," unpublished manuscript, USARSO History Office, Fort Clayton, Panama, 1973, 3.

<sup>82</sup> Canal Record, 19 May 1909, 297.

<sup>83</sup> "Quarry Heights," USARSO History Office, 3.

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approximately 500 Marines. Before the installation was begun, however, the Marines were dispatched to Mexico and the project was abandoned in early 1914.<sup>84</sup>

By early 1915, the site had been selected as the location for the newly organized United States Army Forces in the Canal Zone. Proximity to The Panama Canal headquarters building, the company towns of Balboa and Ancon, and Panama City made the location perfect for the Army Command. Expediency was a primary operating factor, and construction was underway by early 1915. Authorization was given for \$7,500 to be spent on grading, water, and sewer lines and road construction on the site for commanding general and staff quarters and a headquarters building.<sup>85</sup> Since the site was very small, it was assumed the Quarry Heights headquarters would only be a temporary situation, and a more expansive site would be selected in the future. Construction, therefore, was also considered temporary. "Headquarters and supply/administrative/barracks buildings were hastily erected, using immediately available materials for the temporary structures."<sup>86</sup> The space was to be shared by command headquarters and the Provost Guard.

By far the most expedient method of constructing living quarters had been pioneered by the Isthmian Canal Commission in late 1912 and early 1913. They simply dismantled buildings no longer needed at construction sites, then moved and reassembled them where they were needed. "The prompt removal and reerection of these quarters has been of great benefit to the commission. It has solved the problem of quartering the force as the work has shifted, at a cost of less than one-third of what it would cost to reconstruct new buildings of similar types."<sup>87</sup> This movement of buildings was undertaken on a large scale, with 55 moved in 1915 alone.<sup>88</sup> During the immediate post-Canal construction period, this was the administration's preferred method for acquiring living quarters "...for temporary use, either by the civilian force of the canal or by the military contingent."<sup>89</sup> Because The Panama Canal was performing the construction work for Quarry Heights, it is likely this method of inexpensive, fast supply of quarters was used for this site from the beginning. Property records do indicate that three four-family sets of Non-

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<sup>84</sup> Joseph Bishop, The Panama Gateway, (New York: Charles Scribner's Sons, 1915), 393; U.S. Senate, Report by the Commission of Fine Arts, 14; Johnson, "An American Legacy in Panama," 32.

<sup>85</sup> The Panama Canal, Annual Report 1915, 9, 95.

<sup>86</sup> Isthmian Historical Society, "History of the military post of Quarry Heights," unpublished manuscript, (Balboa, Canal Zone: Isthmian Historical Society, n.d.), 3.

<sup>87</sup> Isthmian Canal Commission, Annual Report 1913, 376.

<sup>88</sup> The Panama Canal, Annual Report 1915, 32.

<sup>89</sup> Bishop, The Panama Gateway, 391.

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Commissioned Officers' quarters were moved to Quarry Heights from the town of Empire in September 1920.<sup>90</sup>

Although there has yet to be found any solid evidence linking the staff officers' quarters at Quarry Heights to this method of recycling buildings, several facts do point to the possibility. According to the 1915 annual report of The Panama Canal, "...a large number of framed quarters of different type were taken down at Culebra, Empire, Gatun, and other places, transported to Balboa, Ancon, and vicinity, and reerected either in their original design or under modified plans. A large number of such buildings embraced the largest type of official houses, including that of the Governor's."<sup>91</sup> Quarry Heights was located in the area noted in the annual report, and its general area was referred to in various company reports and newsletters as "Military Heights," "Balboa Heights," "Balboa," and "Military Hill."<sup>92</sup> The apparent lack of an official name for the reservation at this time may explain the lack of records about moving buildings to the site during the years the officer's quarters were erected. As construction towns became obsolete, their buildings were made available for use by the Army. The larger homes of the higher-ranking Canal officials would naturally have become quarters for the higher-ranking officers of the Army. "The town of Empire was abandoned and taken over by the Army on November 25, 1914, and the buildings at Culebra were made available for use by the Army and occupied on March 25, 1915..."<sup>93</sup> The timing of this turnover would have been convenient for having some of the housing transferred to the new installation at Quarry Heights. Also, part of the first appropriation for Army housing was used for a residence for the commanding general at Quarry Heights and for modifications of buildings transferred from the canal to the Army at Las Cascadas, Empire, Culebra, and Gatun.<sup>94</sup> The quarters at Quarry Heights were built from revised plans, perhaps representing these "modifications."

Although Building Division reports use the word "construction" when referring to the progress at Quarry Heights, the same word was also used at various times and places to refer to the process of reassembling moved buildings.<sup>95</sup> "Construction" work on the residence of General Edwards

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<sup>90</sup> Property Book Sheet, Directorate of Engineering and Housing, Army Garrison Panama, Corozal, Republic of Panama.

<sup>91</sup> The Panama Canal, Annual Report 1915, 259-260.

<sup>92</sup> Canal Record, 9 September 1915, 43; 24 November 1915, 122.

<sup>93</sup> The Panama Canal, Annual Report 1915, 38.

<sup>94</sup> *Ibid.*, 32.

<sup>95</sup> Canal Record, 12 August 1914, 512.



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and ten type-17 cottages (basic one-family) was in progress by June 1915.<sup>96</sup> By September, an additional five type-8, one type-21, and one type-20, staff officers' quarters were under construction.<sup>97</sup> At the end of November, "work was commenced on three additional buildings, two type-20 and one type-21; one of the seven buildings originally authorized was completed and occupied, and the remaining six of this group were completed, with the exception of the installation of electrical fixtures and some painting."<sup>98</sup>

There is also some secondary evidence for assuming the officers' quarters were moved in and re-erected. An undated manuscript history of Quarry Heights written by the Isthmian Historical Society and a 1973 brochure produced by the United States Southern Command both state the relocations as fact.<sup>99</sup> According to these documents, "the frame quarters originally built at the construction camps of Empire and Culebra for 'run of the job' housing for higher grade construction officials and officers of the early 'Guard' forces were knocked down and moved to Quarry Heights."<sup>100</sup> Houses were apparently moved in as the need for them arose. In 1915, at least ten were re-erected, with five more in 1916, and seven in 1918.<sup>101</sup> At this point, the main terrace was completely ringed with these wooden frame buildings that, although "repainted, reroofed, and repaired many times in the intervening years...[are] the same buildings that overlooked the raw excavations of the Culebra cut and provided that 'castle' for the bone-weary construction foreman or overseer at the end of a hellish day at the bottom of the Canal diggings."<sup>102</sup>

Whether the buildings were constructed on the spot from scratch or moved in from construction camps, they were quickly put to use as the post developed around them. In 1916, grading was done around the quarters and barracks, track (from quarry days) was removed, sidewalks were constructed, concrete drains provided along roads, and a retaining wall put in place.<sup>103</sup>

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<sup>96</sup> Canal Record, 23 June 1915, 385.

<sup>97</sup> Canal Record, 9 September 1915, 43.

<sup>98</sup> Canal Record, 24 November 1915, 122.

<sup>99</sup> Unfortunately, neither history identifies any sources.

<sup>100</sup> "Quarry Heights," USARSO History Office, 5.

<sup>101</sup> Isthmian Historical Society, "History of the military post of Quarry Heights," 4.

<sup>102</sup> Ibid.

<sup>103</sup> The Panama Canal, Annual Report 1916, 106.

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When the Panama Canal Department was established on 1 July 1917, Quarry Heights became the headquarters site for the command, and also for the Panama Canal Division (the mobile force). This installation also became the location for the Coast Artillery District Command.<sup>104</sup> When the

Board of Officers was convened in 1917 to select sites for permanent military posts, their report on Quarry Heights recommended that:

For department and divisional headquarters, the occupation at Quarry Heights should be continued, but inasmuch as all quarters already constructed at this location, and some additional quarters now under construction, are of the frame type, the Board recommends that all additional quarters in the vicinity of headquarters be constructed of frame, including the division headquarters building. This recommendation is made, not only for the sake of uniformity, which is desirable, but because a plan for a settlement of concrete buildings would involve the formulation now of a finished plan, and enforce some changes, and also because the restrictions of this site as to room for future growth, and its possible future necessity for Panama Canal expansion, may at some future date justify a recommendation to move the headquarters to another location.<sup>105</sup>

With the majority of the early construction at Quarry Heights either completed or underway, a building inventory listed quarters as 1 residence for the Commanding General, 17 single sets for officers, 2 small one-family sets, type-17 for clerks, and 3 four-family sets for clerks and non-commissioned officers.<sup>106</sup> Occupying these quarters were headquarters staff and military police. In July 1919, a touring car detachment of one officer and 44 enlisted men was stationed there.<sup>107</sup>

Executive Order No. 3202 formally established the Quarry Heights Reservation on 22 December 1919. A little over a year later, on 21 January 1921, Executive Order No. 3386 enlarged the reservation by including the summit of Ancon Hill, providing a commanding view of the town of Balboa and the Canal from the Pacific terminus up to the Miraflores Locks.<sup>108</sup>

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<sup>104</sup> De Mena, "History of the United States Army in the Panama Canal Area," 4.

<sup>105</sup> Board of Officers to Brigadier General A. Cronkhite, U.S.A., August 28, 1917, File 13-U-2/25, Part 2, January 1, 1916-April 30, 1934, General Records 1914-34, Records of The Panama Canal, 1914-1950, Record Group 185, National Archives, Washington, DC.

<sup>106</sup> Ibid.

<sup>107</sup> "Quarry Heights," USARSO History Office, 9.

<sup>108</sup> Ibid., 10.

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In 1921, Company A, Military Police, was discontinued. Redesignated as Headquarters and Military Police Company, it was considered Special Troops of the Panama Canal Division along with the 10th Signal Company, 10th Ordnance Company, and Motorcycle Company #10, QMC, all stationed at Quarry Heights. During November 1921, the Headquarters of the Panama Canal Division was transferred to Fort Amador, along with all Special Troops except Military Police.<sup>109</sup>

Reorganizations continued as Headquarters, Panama Coast Artillery Defenses was transferred to Fort Amador on 29 November 1926. Until 2 March 1931, the Post of Quarry Heights was apart from Headquarters, Panama Canal Department. They were consolidated under the acting Provost Marshall, who became Headquarters Commandant, Panama Canal Department. This command structure was rescinded on 26 January 1938 when the Post of Quarry Heights was re-established and the Headquarters and Headquarters Detachment, Post of Quarry Heights, was organized.<sup>110</sup>

Troop strength at Quarry Heights continued to grow throughout the 1930s. From 37 officers and 205 enlisted men of Panama Canal Department in December 1934, the installation grew to 31 officers and 442 enlisted men by December 1939.<sup>111</sup> Construction expanded with the increase in troops, with the largest project being construction of a Department Command Post. This project began with a directive from Lt. General Daniel Van Voorhis, Commanding General of the Panama Canal Department, on 27 March 1940.<sup>112</sup> Need for the command post was justified as being "necessary for use in case of emergency and vital to the security of important data."<sup>113</sup> The command post consisted of a bombproof tunnel of reinforced concrete located 200 feet under Ancon Hill, with the opening across from the Headquarters Building, Quarry Heights. The \$400,000 project was completed 20 January 1942, just after the United States entered WWII.<sup>114</sup>

On 10 February 1941 the War Department officially activated the Caribbean Defense Command. Headquartered at Quarry Heights, the Commanding General of the Panama Canal Department,

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<sup>109</sup> "Quarry Heights," USARSO History Office, 9-12; "The Duties of Special Troops," Infantry Journal 26 (April 1925): 430.

<sup>110</sup> "Quarry Heights," USARSO History Office, 14.

<sup>111</sup> Panama Canal Department Historical Section, History of the Panama Canal Department, (n.p., 1949), vol. 1, Introduction and Historical Background 1903-1939, 49 and vol. 2, Preparation for War 1939-1941, 34.

<sup>112</sup> "Quarry Heights," USARSO History Office, 14; "Historical Information Concerning Quarry Heights Army Reservation Command Post (Bld. 81, Quarry Heights, C.Z.), n.d., in "Quarry Heights," vertical file, USARSO History Office, Fort Clayton, Panama.

<sup>113</sup> Ibid.

<sup>114</sup> Hannaman, interview, 8 February 1994; "Quarry Heights," USARSO History Office, 14; "Historical Information Concerning Quarry Heights Army Reservation Command Post."

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General Daniel Van Voorhis, was also placed in command of the Caribbean Theater. General Frank M. Andrews succeeded General Van Voorhis in August 1941.<sup>115</sup>

A command reorganization in 1947 resulted in the unified command being renamed the Caribbean Command on 31 October. The Panama Canal Department became the U. S. Army Caribbean on 15 November. Both commands were headquartered at Quarry Heights until 20 April 1949, when the Army command was relocated to Fort Amador. This command structure lasted until 1963, when the Caribbean Command was redesignated as the United States Southern Command (USSOUTHCOM), and the Army component became the United States Army Forces Southern Command (USARSO).<sup>116</sup> Quarry Heights remains the site of USSOUTHCOM headquarters.

The reservation boundaries were extended in 1963 "to include contiguous areas retained under Canal Zone licenses and an area along Morgan Avenue adjacent to the reservation, which was required for additional military housing."<sup>117</sup> By 1966, seven units of new housing had been constructed along the narrower terrace above the main shelf. At that time, the installation contained 50 sets of officer quarters and 33 sets of enlisted quarters.<sup>118</sup>

As a result of the Panama Canal Treaty, two units of housing were transferred to the Republic of Panama on 1 October 1979.<sup>119</sup> The Quarry Heights military reservation must be transferred to the Republic of Panama on or before noon, 31 December 1999.

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<sup>115</sup> Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 306-309, 344-348; "Quarry Heights," USARSO History Office, 15.

<sup>116</sup> De Mena, "History of the United States Army in the Panama Canal Area," 9, 11.

<sup>117</sup> Environmental Resources Planning Section, Mobile District Corps of Engineers, Draft Report "Historic Resources Assessments for Treaty Related Activities, Panama, C.A.," (Mobile, Alabama: Mobile District Corps of Engineers, 1993), 34.

<sup>118</sup> Tom Scanlon, ed., Army Times Guide to Army Posts, second edition, (Harrisburg, PA: Military Service Division, the Stackpole Company, 1966).

<sup>119</sup> De Mena, "History of the United States Army in the Panama Canal Area," 12.

PART II. ARCHITECTURAL INFORMATION:

A. General Statement:

1. Architectural Character: The architectural character of Quarry Heights is dominated by the residential structures. These square houses with weathered gray frame exteriors, turquoise roofs, and wrap-around verandas are visually evocative of the early Canal construction era. The other structures are also primarily frame and continue the main architectural theme.
2. Condition of the fabric: The buildings at Quarry Heights have been generally well maintained. The condition of the fabric remains good.

B. Site:

1. General Setting: The Quarry Heights area was originally developed as a headquarters and housing area for upper-echelon officers and it continues that specific use. Located on a large shelf cut out of a hill overlooking The Panama Canal company town of Balboa, the area was and is a prestigious residence for Army officers, with shady streets and secluded quarters (HABS No. CZ-4-1 through CZ-4-3). The area retains its original siting and layout, with very little new construction in the main administrative and housing area. The USSOUTHCOM Commander-in-Chief's house is located at a promontory at the far western edge of the main shelf, with a commanding view of Balboa and the Canal. There is a common area in the southwestern part of Quarry Heights, containing a shopette, post office, and administration building arranged around a central square parking lot. The original housing areas are located in the western part of Quarry Heights. More recent housing areas are located on a smaller terrace above, and on the hillside below (Figure 2).
2. Historic Landscape Design: The western part of Quarry Heights contains the original parade field (now a large open green space with manicured lawn) separating a row of quarters from Andrews Road and the USSOUTHCOM Headquarters Building. Tall palm trees line the streets along with original cast iron street lamps.
3. Buildings: The site contains many types of buildings including administrative, residential (including a two-story house, HABS No. CZ-4-A), retail, security, and recreation.



PART III. SOURCES OF INFORMATION:

- A. **Architectural Drawings:** The officer's quarters (HABS CZ-4-A) was designed and constructed by the Isthmian Canal Commission (or The Panama Canal), Building Division, from revised plans for Type 20 Staff Quarters, drawing numbers M-4025-1 through 14. The drawings used for the construction of this house were revised from the original drawing set. Revisions dated 22 July 1915 and 20 October 1915 modified only minor dimensional and detail changes that little affected the overall appearance of the house. Original architectural drawings are located at the Panama Canal Commission Administration Building, Department of Engineering Vault, in Balboa Heights, Panama.
- B. **Early Views:** Early photographs of Quarry Heights are found in the collection of the Panama Canal Commission, Balboa, Republic of Panama. Originals are held as the Panama Canal Collection Series 185-G, and are housed at the Still Picture Branch, National Archives, Washington, D.C. Early photographs of individual buildings are in the possession of the Directorate for Engineering and Housing, U.S. Army Garrison - Panama, Corozal, Republic of Panama.
- C. **Interviews:**
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- D. **Bibliography:**
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- E. Likely Sources not Yet Investigated: Further research into archival material would be beneficial.
- F. Supplemental Material: None

PART IV. PROJECT INFORMATION:

The project was sponsored by the Legacy Resource Management Program (LRMP) established by the United States Department of Defense. The work was performed by Mira D. Metzinger and Susan I. Enscoe of the United States Army Corps of Engineers Construction Engineering Research Laboratories (USACERL). The project was completed at the USACERL Tri-Services Cultural Resources Research Center. The project historian was Dr. Enscoe, with contributions by Robert Chenier (USACERL). Ms. Metzinger produced the architectural description section of the report. Martin Stupich produced the large-format photographs contained in the report. Compilation assistance was provided by Julie L. Webster (USACERL). Documentation was coordinated through the office of the Mobile District Corps of Engineers through historian Charles Moorehead, with special assistance by the Directorate of Engineering and Housing (DEH), Panama, with Suzanne P. Johnson, volunteer, Engineering Division, DEH, under the direction first of LTC John Lovo, DEH Director, then LTC Patrick L. Staffieri, DEH Director.

QUARRY HEIGHTS, OFFICERS' QUARTERS  
(Quarry Heights, Building 23)  
Parkinson Lane  
Balboa Vicinity  
Former Panama Canal Zone  
Republic of Panama

HABS No. CZ-4-A

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY  
Rocky Mountain Regional Office  
National Park Service  
Department of the Interior  
12795 W. Alameda Parkway  
Denver, Colorado 80225

# HISTORIC AMERICAN BUILDINGS SURVEY

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Parkinson Lane  
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Documentation: 13 exterior photos (1994)  
7 interior photos (1994)  
1 photographic copy of photo (ca. 1924)  
8 photographic copies of architectural drawings (ca. 1915)  
9 data pages (1994, 1995)

Martin Stupich, Photographer, February 1994  
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- CZ-4-A-12    DETAIL OF EAVES, RAFTERS AND BRACKETS OF SOUTHWEST CORNER.
- CZ-4-A-13    DETAIL OF BRACKET, STRINGER AND RAFTERS OVER FRONT ENTRANCE.
- CZ-4-A-14    INTERIOR DETAIL OF VERANDA, FACING EAST.
- CZ-4-A-15    INTERIOR DETAIL OF LIVING ROOM WALL, FACING SOUTHWEST, SUPPLEMENTAL INTERIOR OF IDENTICAL BUILDING.
- CZ-4-A-16    INTERIOR VIEW OF PANTRY, FACING SOUTH, SUPPLEMENTAL INTERIOR OF IDENTICAL BUILDING.
- CZ-4-A-17    INTERIOR VIEW OF MAIN HALL STAIR, FACING EAST.
- CZ-4-A-18    INTERIOR VIEW OF SECOND FLOOR HALL STAIR LANDING, FACING SOUTHWEST.
- CZ-4-A-19    INTERIOR VIEW OF SECOND FLOOR HALL, FACING SOUTH.
- CZ-4-A-20    INTERIOR VIEW OF SECOND FLOOR CHAMBER, FACING SOUTHWEST.
- CZ-4-A-21    Photographic copy of photograph, ca. 1924 (original print located in the Construction Inventory Book at the Directorate of Engineering and Housing, U.S. Army Garrison-Panama, Corozal, Republic of Panama).  
EAST FRONT
- CZ-4-A-22    Photographic copy of architectural drawing (original drawing located at the Panama Canal Commission Headquarters Building, Department of Engineering Vault, Balboa Heights, Republic of Panama).  
FIRST FLOOR PLAN
- CZ-4-A-23    Photographic copy of architectural drawing (original drawing located at the Panama Canal Commission Headquarters Building, Department of Engineering Vault, Balboa Heights, Republic of Panama).  
SECOND FLOOR PLAN

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(Quarry Heights, Building 23)  
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- CZ-4-A-24 Photographic copy of architectural drawing (original drawing located at the Panama Canal Commission Headquarters Building, Department of Engineering Vault, Balboa Heights, Republic of Panama).  
LONGITUDINAL SECTION
- CZ-4-A-25 Photographic copy of architectural drawing (original drawing located at the Panama Canal Commission Headquarters Building, Department of Engineering Vault, Balboa Heights, Republic of Panama).  
FRONT ELEVATION
- CZ-4-A-26 Photographic copy of architectural drawing (original drawing located at the Panama Canal Commission Headquarters Building, Department of Engineering Vault, Balboa Heights, Republic of Panama).  
RIGHT SIDE ELEVATION
- CZ-4-A-27 Photographic copy of architectural drawing (original drawing located at the Panama Canal Commission Headquarters Building, Department of Engineering Vault, Balboa Heights, Republic of Panama).  
REAR ELEVATION
- CZ-4-A-28 Photographic copy of architectural drawing (original drawing located at the Panama Canal Commission Headquarters Building, Department of Engineering Vault, Balboa Heights, Republic of Panama).  
LEFT SIDE ELEVATION
- CZ-4-A-29 Photographic copy of architectural drawing (original drawing located at the Panama Canal Commission Headquarters Building, Department of Engineering Vault, Balboa Heights, Republic of Panama).  
DETAILS OF BOOKSHELVES AND PILASTERS



QUARRY HEIGHTS, OFFICERS' QUARTERS

(Quarry Heights, Building 23)

HABS No. CZ-4-A

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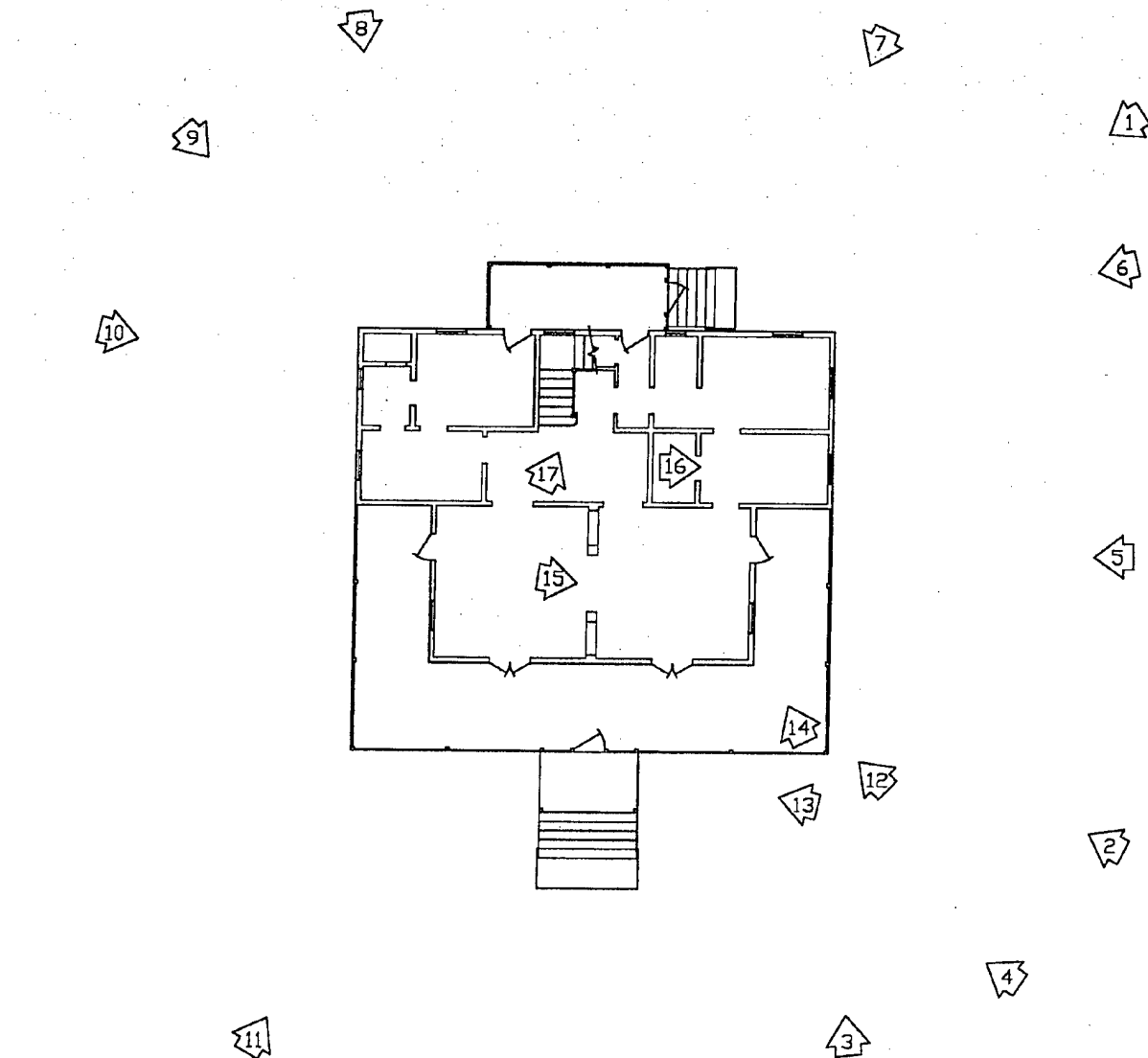


Photo Key - First Floor

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(Quarry Heights, Building 23)  
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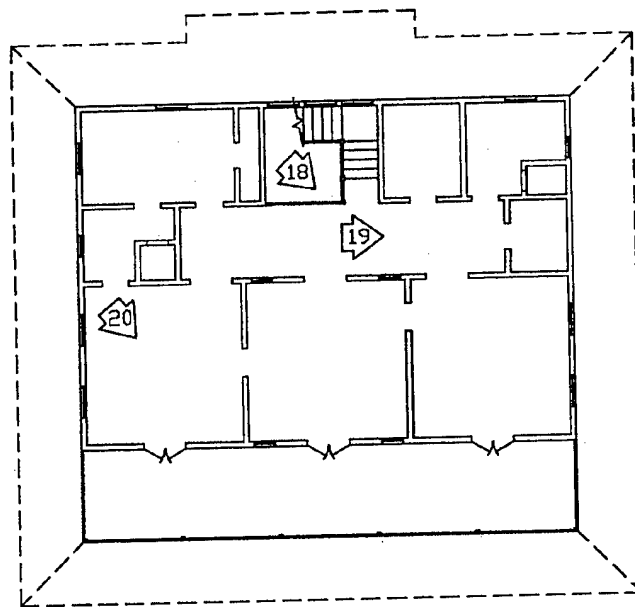


Photo Key - Second Floor

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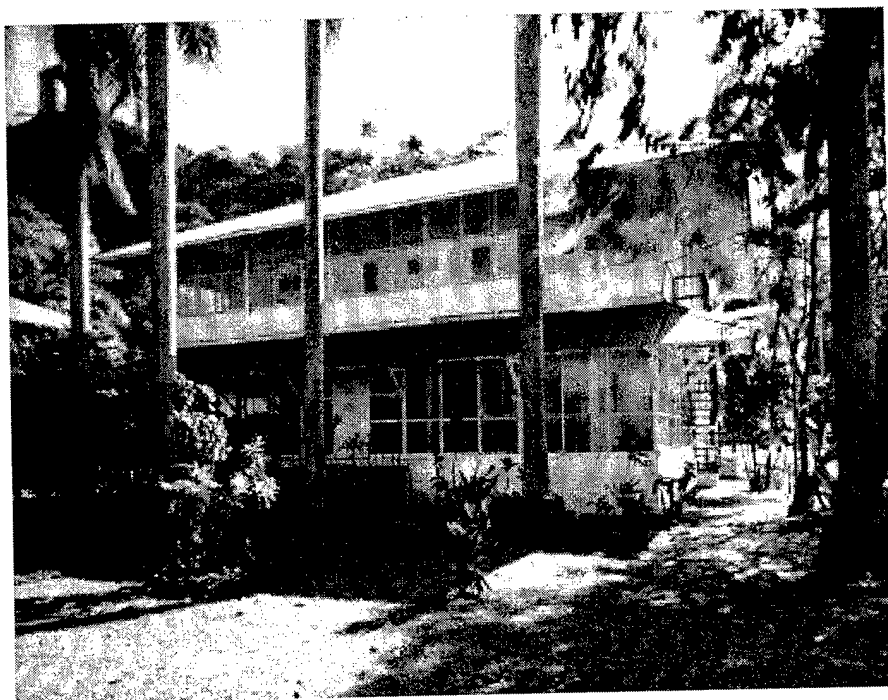
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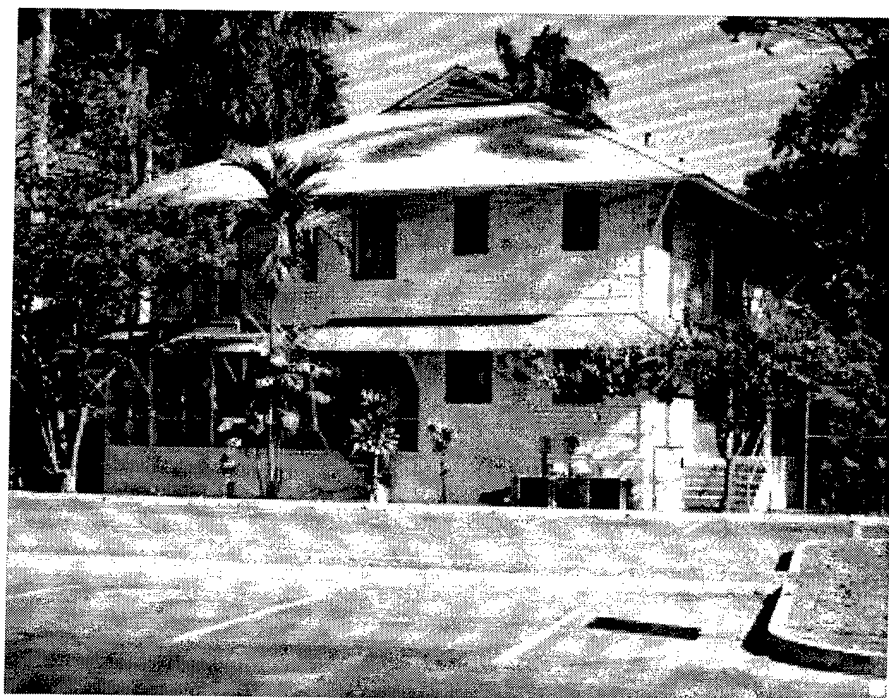
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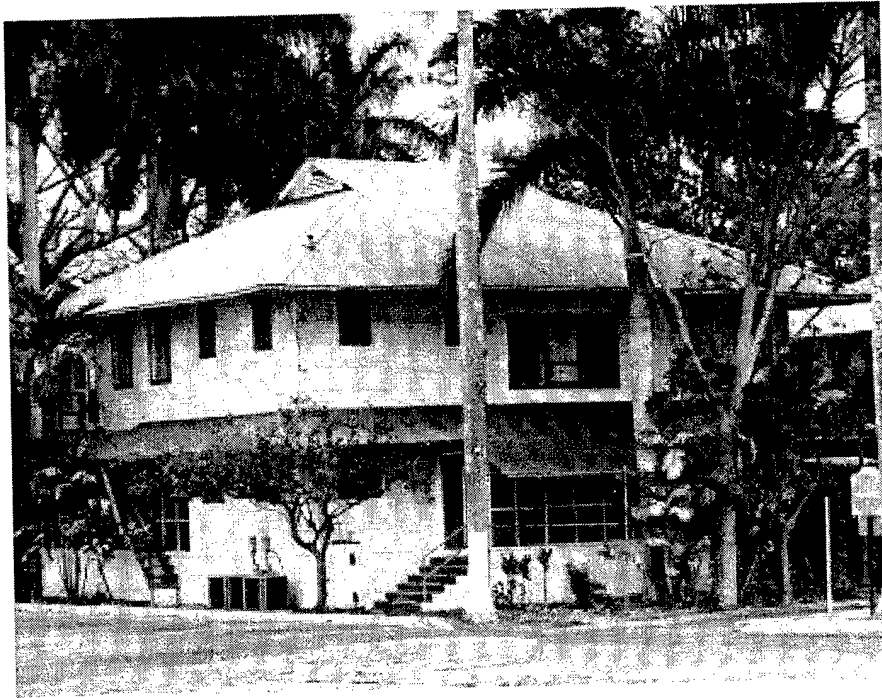
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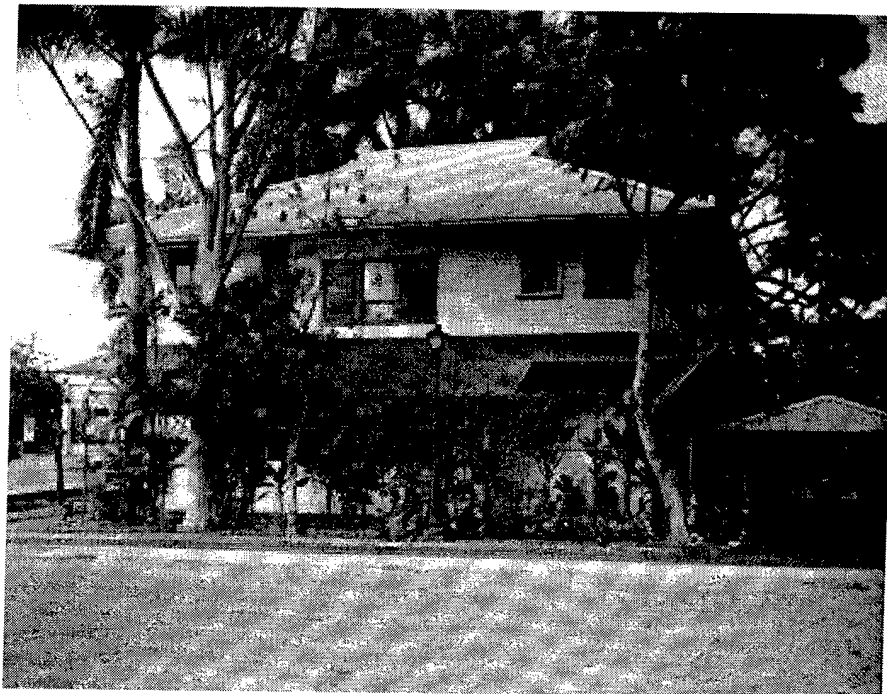
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HABS No. CZ-4-A-8



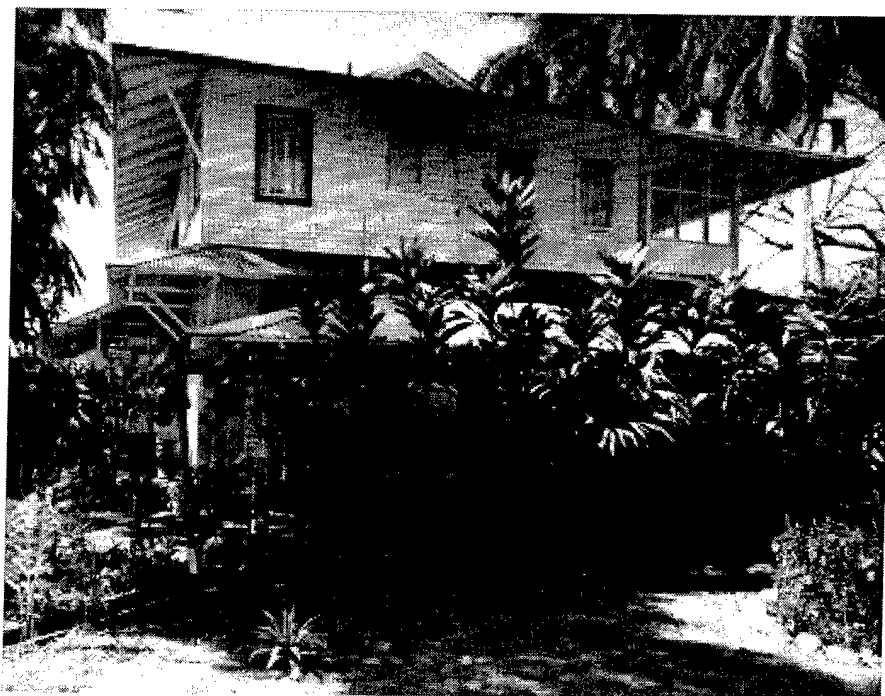
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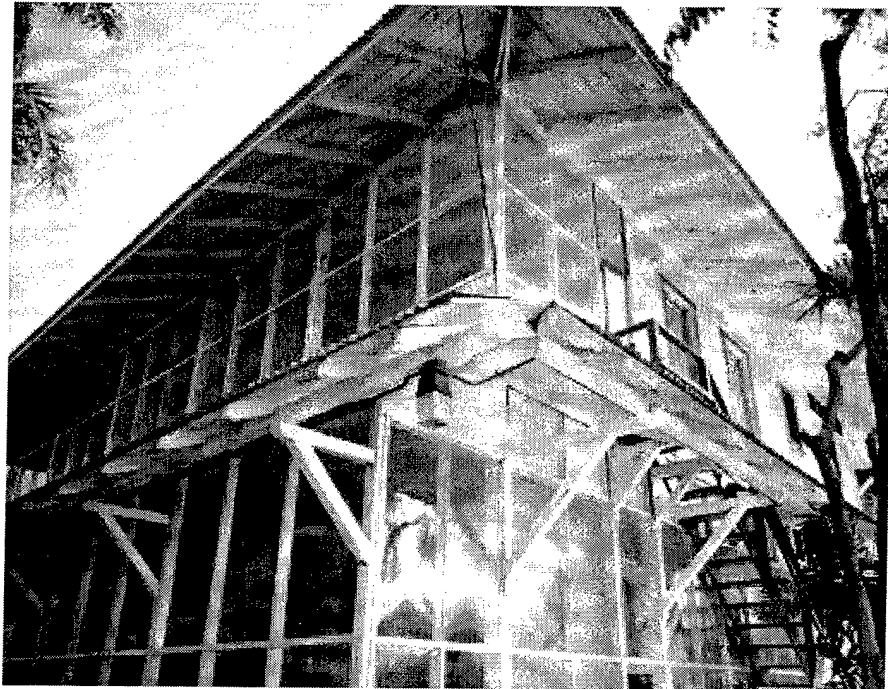
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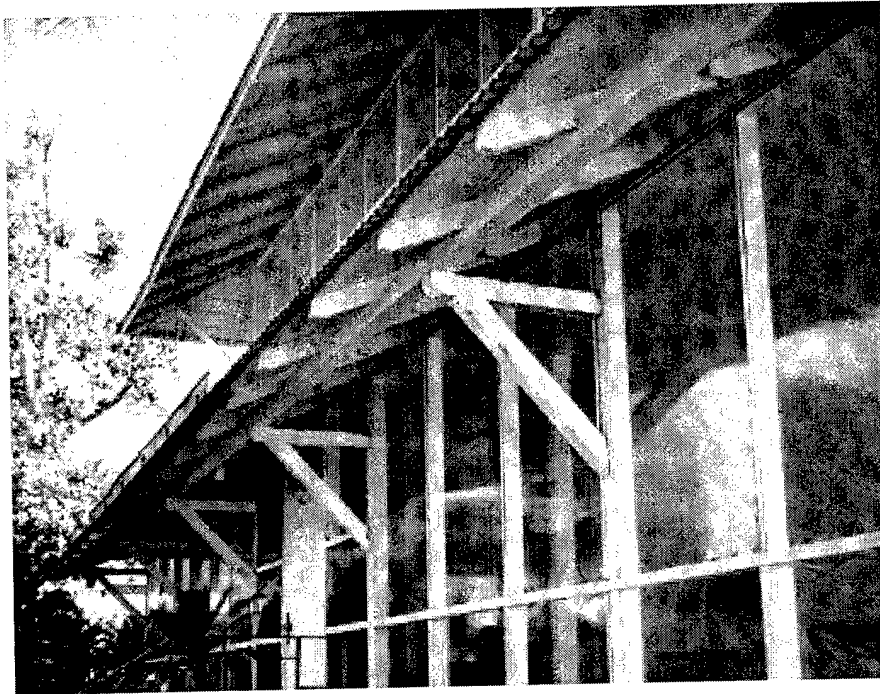
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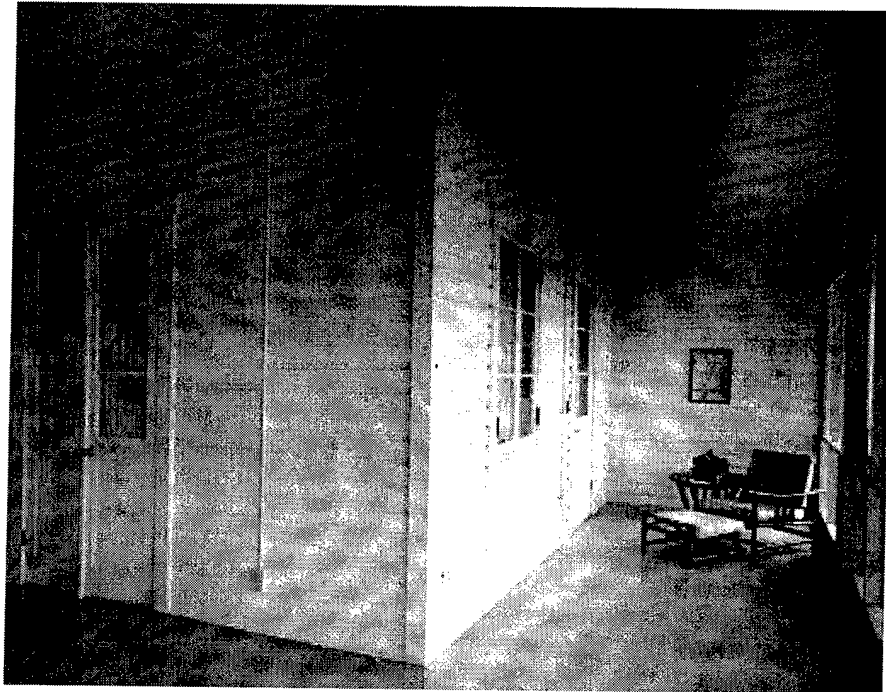
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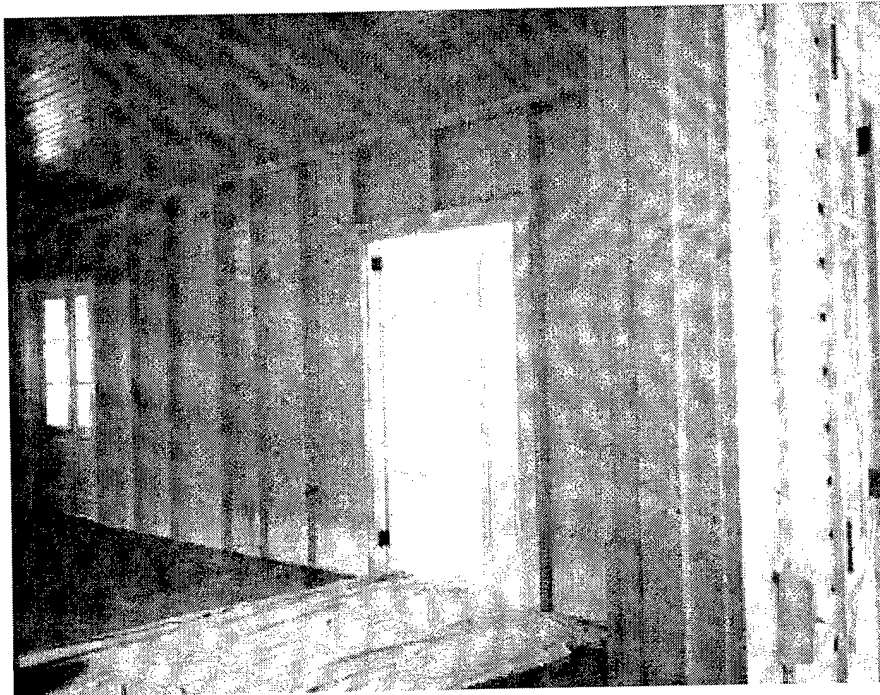
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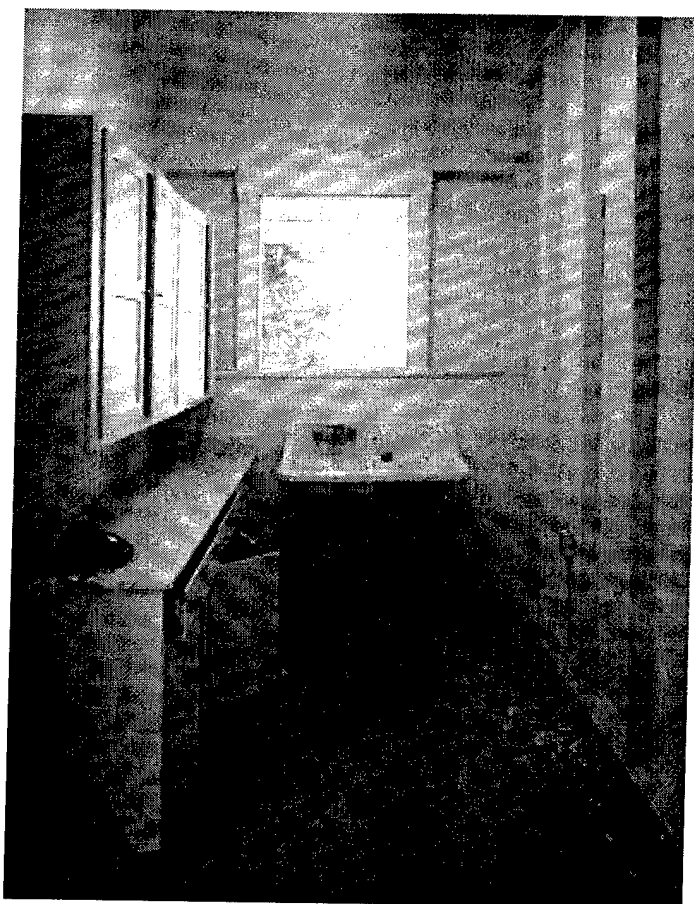
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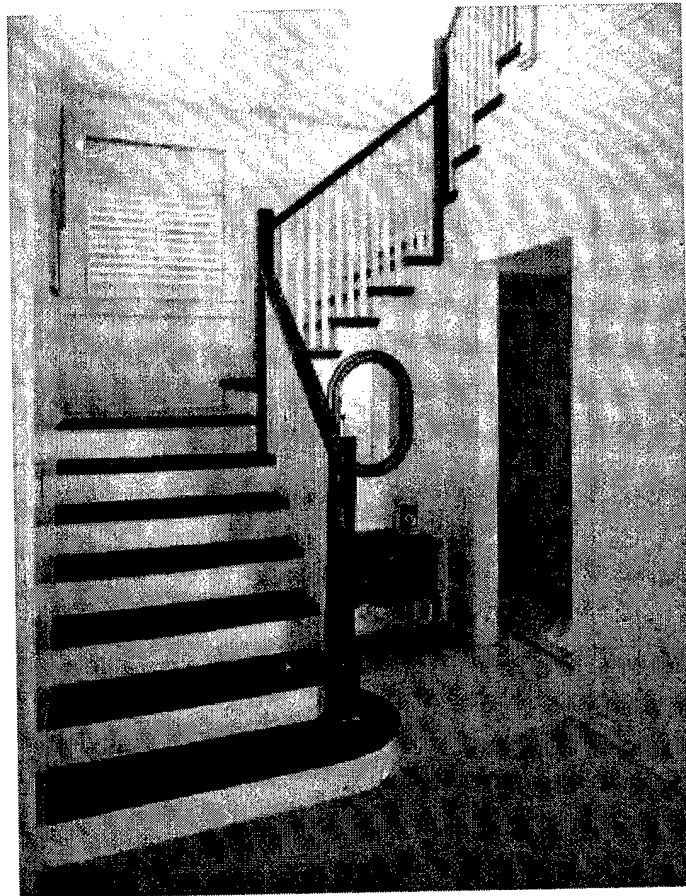
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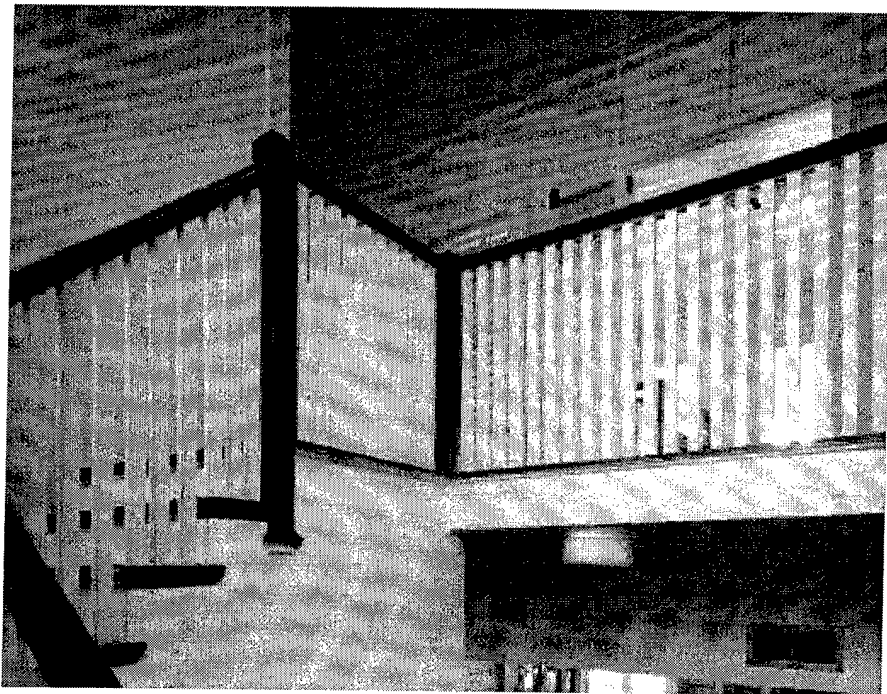
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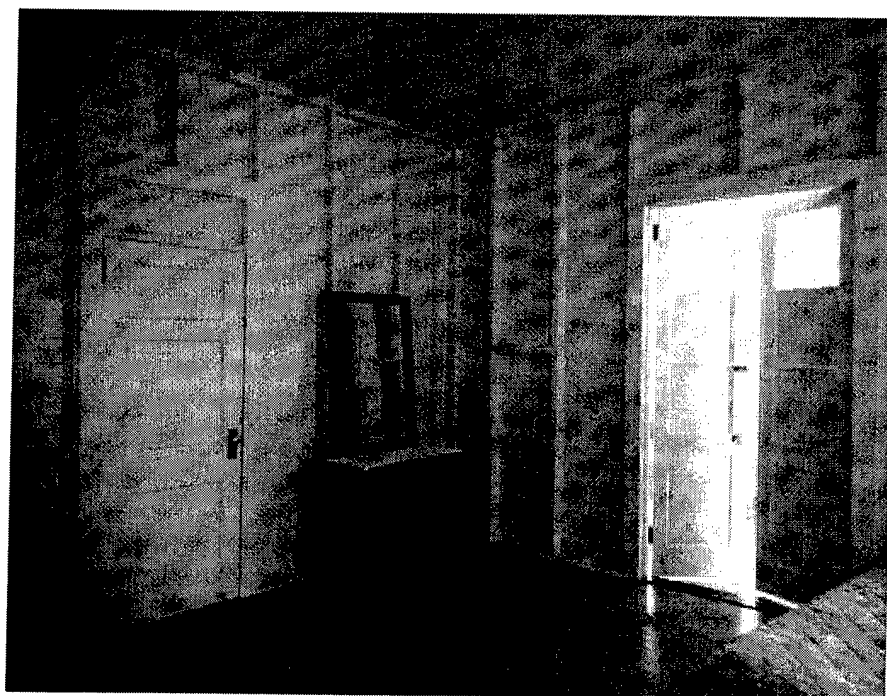
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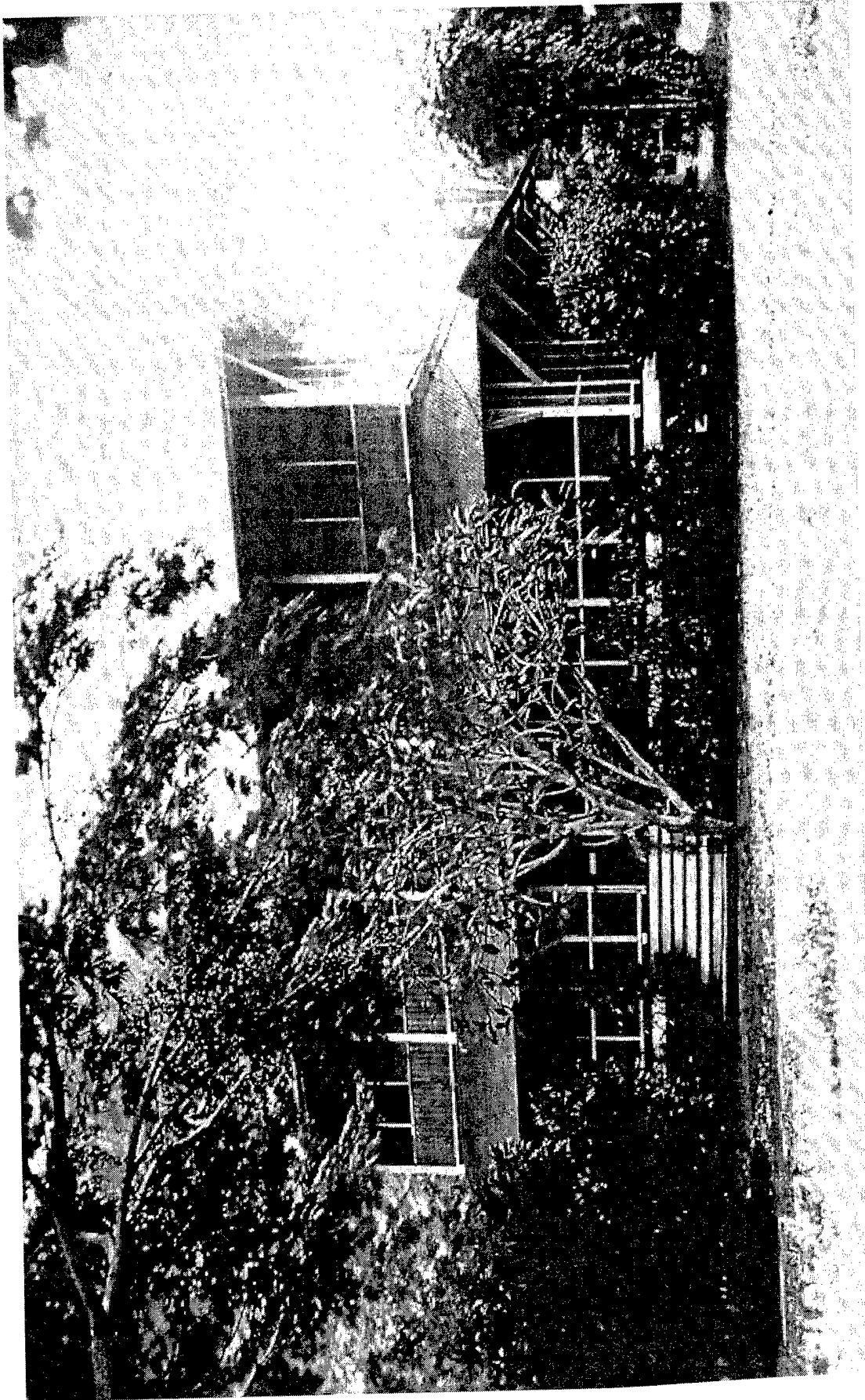
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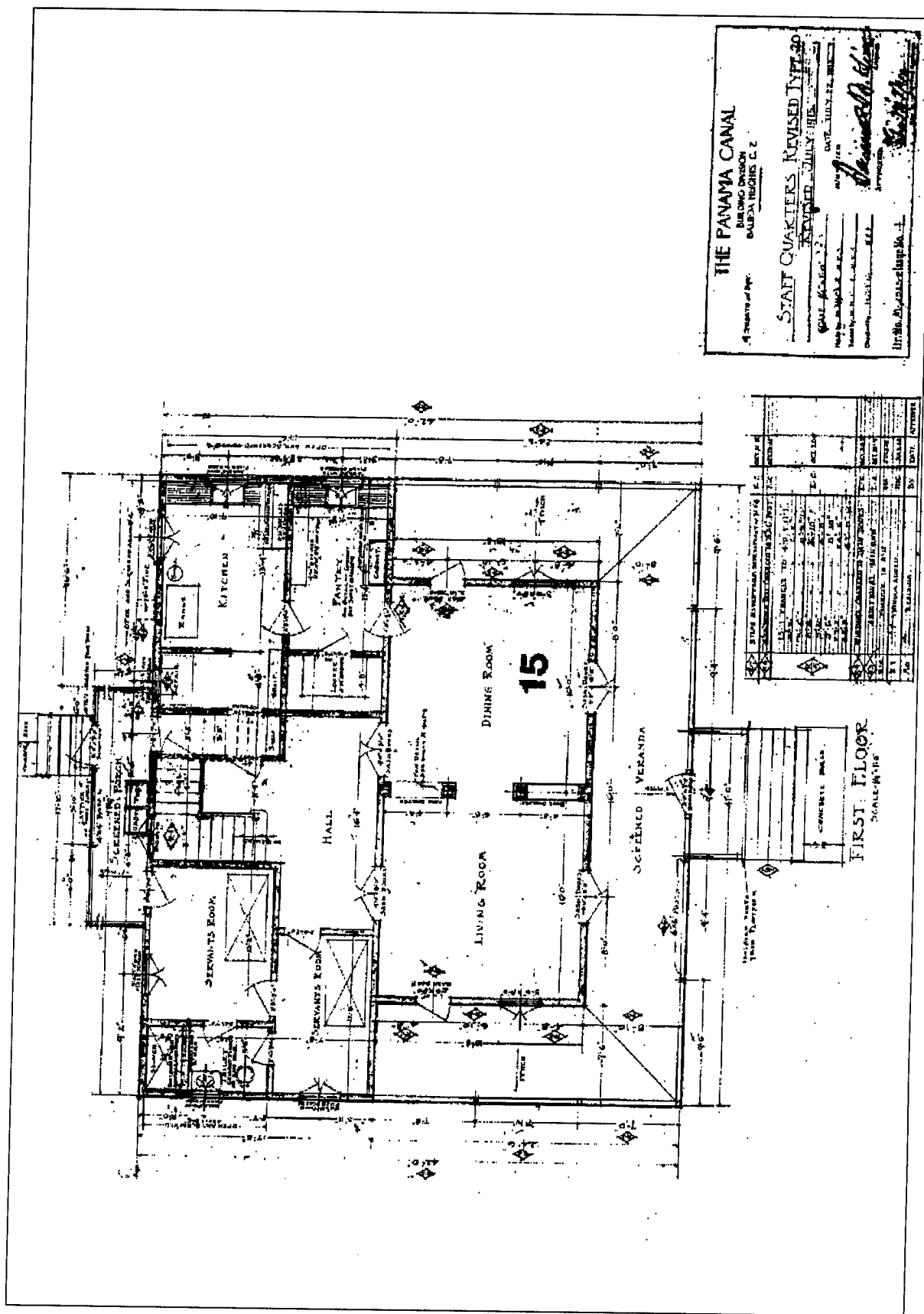


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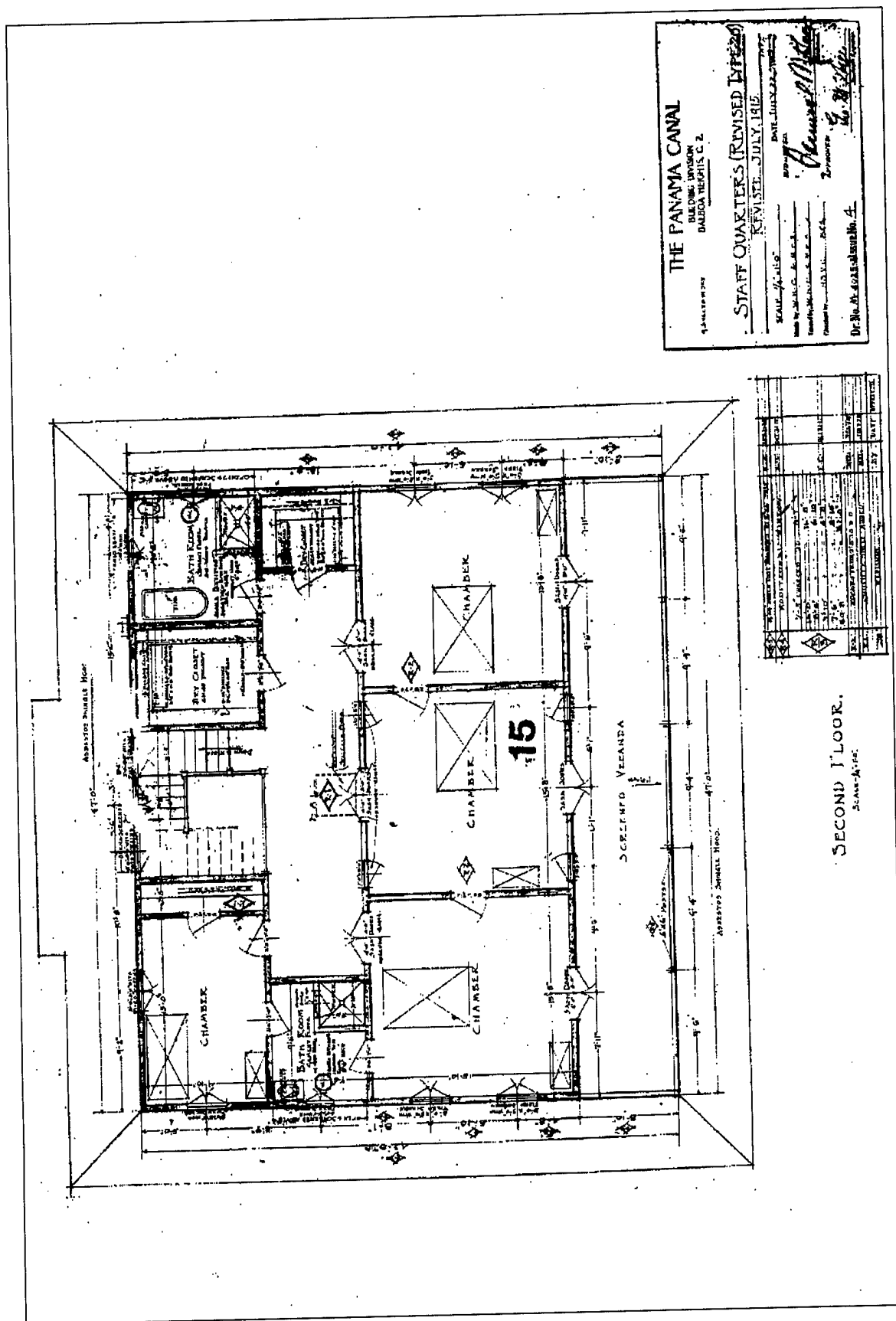
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HABS No. CZ-4-A-23



THE PANAMA CANAL  
BUILDING DIVISION  
DAVIDA TRENCH, C. Z.

STAFF QUARTERS (REVISED BY 20)

DATE: JULY 1915  
BY: [Signature]  
CHECKED BY: [Signature]  
APPROVED BY: [Signature]

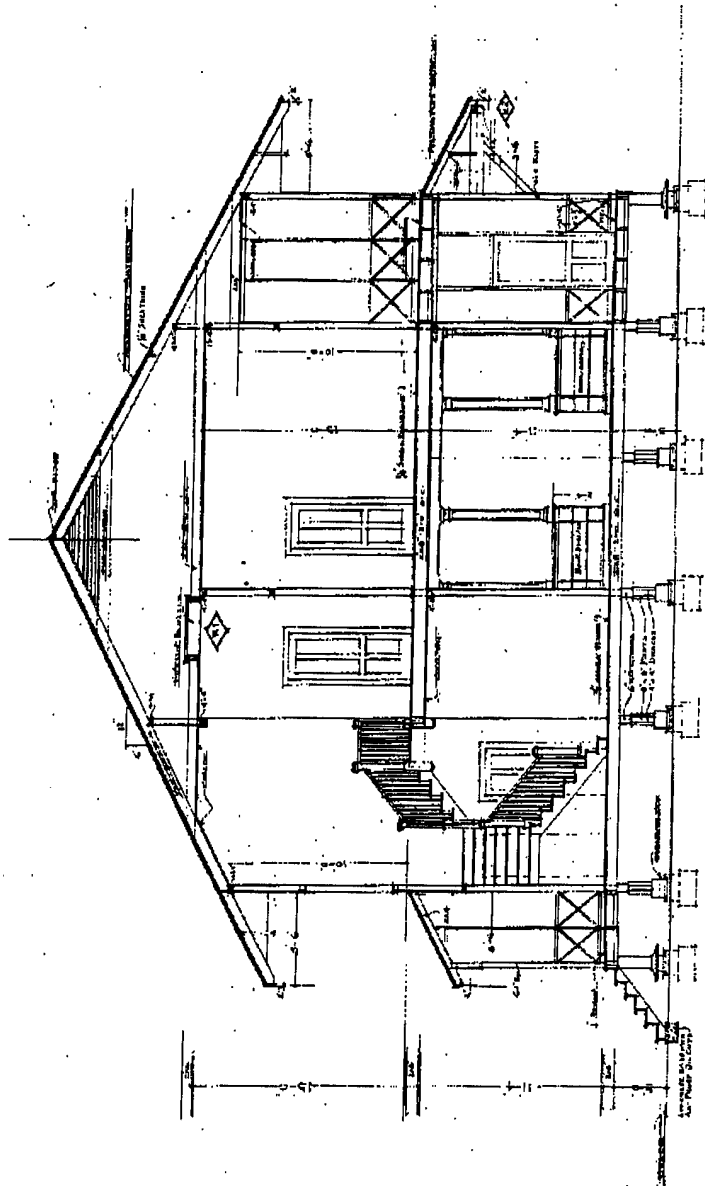
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SECOND FLOOR.  
SCALE: 1/4" = 1'-0"

HISTORIC AMERICAN BUILDINGS SURVEY  
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LONGITUDINAL SECTION

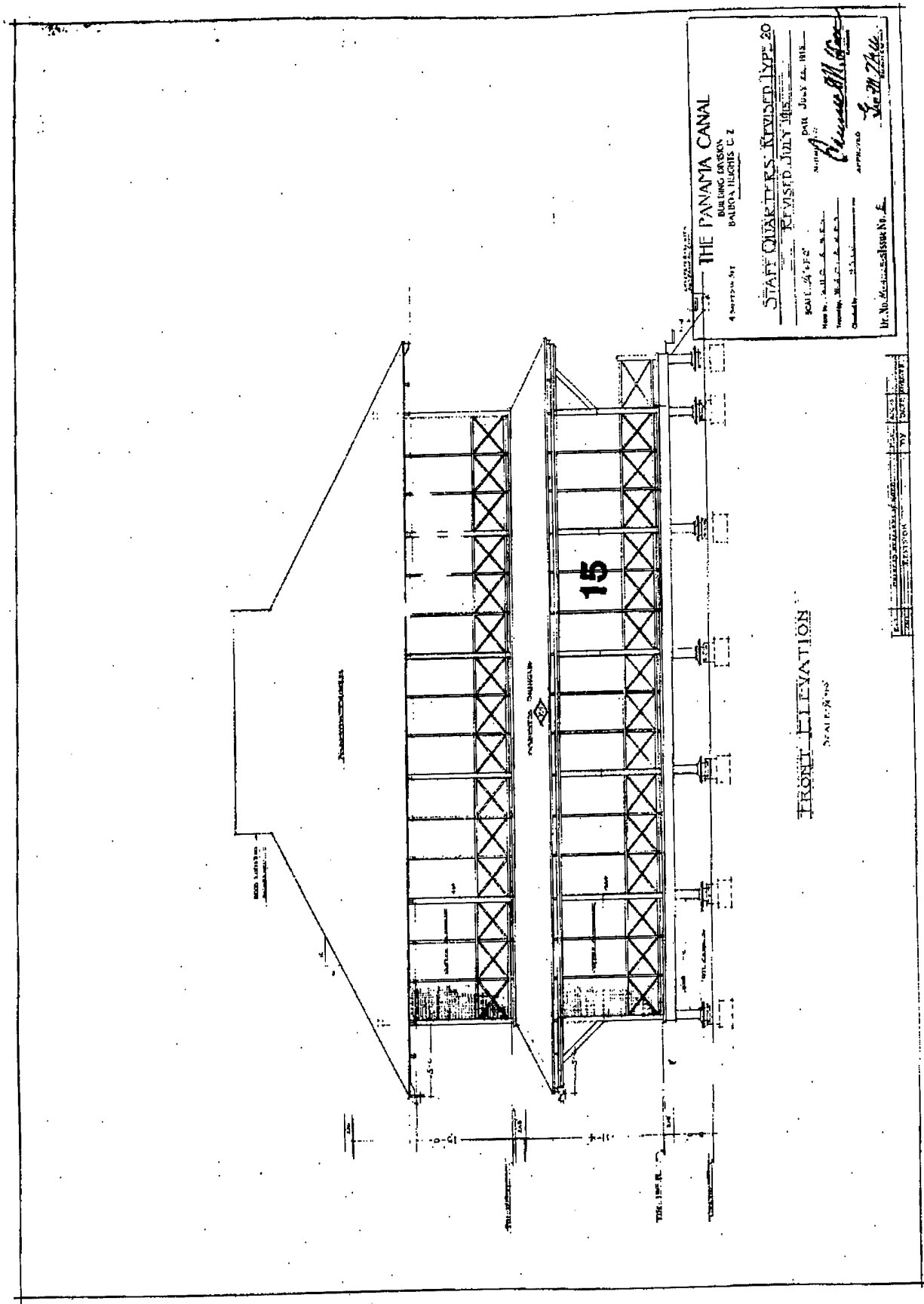
SCALE 1/8" = 1'-0"

THE PANAMA CANAL	
BUILDING DIVISION	
BAJURA HEIGHTS C-2	
STAFF QUARTERS (REVISED TYPE 20)	
REVISED JULY 1915	
SCALE 1/8" = 1'-0"	DATE JULY 22, 1915
DESIGNED BY H. H. H. H.	APPROVED BY <i>James M. King</i>
DR. No. 45-4935-Sub No. 3	DATE <i>July 27, 1915</i>

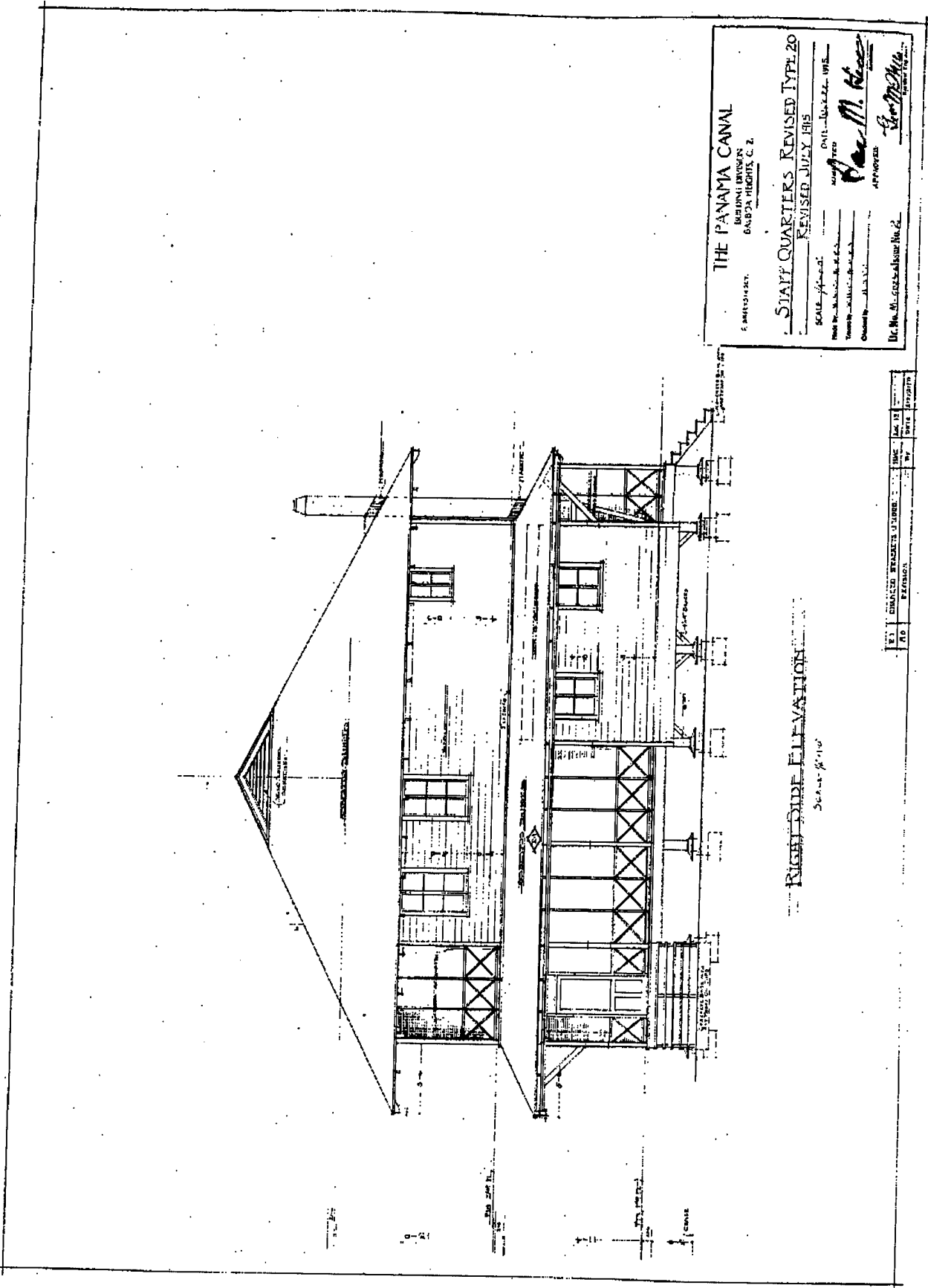
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HISTORIC AMERICAN BUILDINGS SURVEY  
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HABS No. CZ-4-A-26



THE PANAMA CANAL  
ENGINEERING  
DIVISION

STAFF QUARTERS REVISED TYPE 20  
REVISED JULY 1915

SCALE: 1/8" = 1'-0"

DESIGNED BY: [Signature]  
CHECKED BY: [Signature]  
APPROVED BY: [Signature]

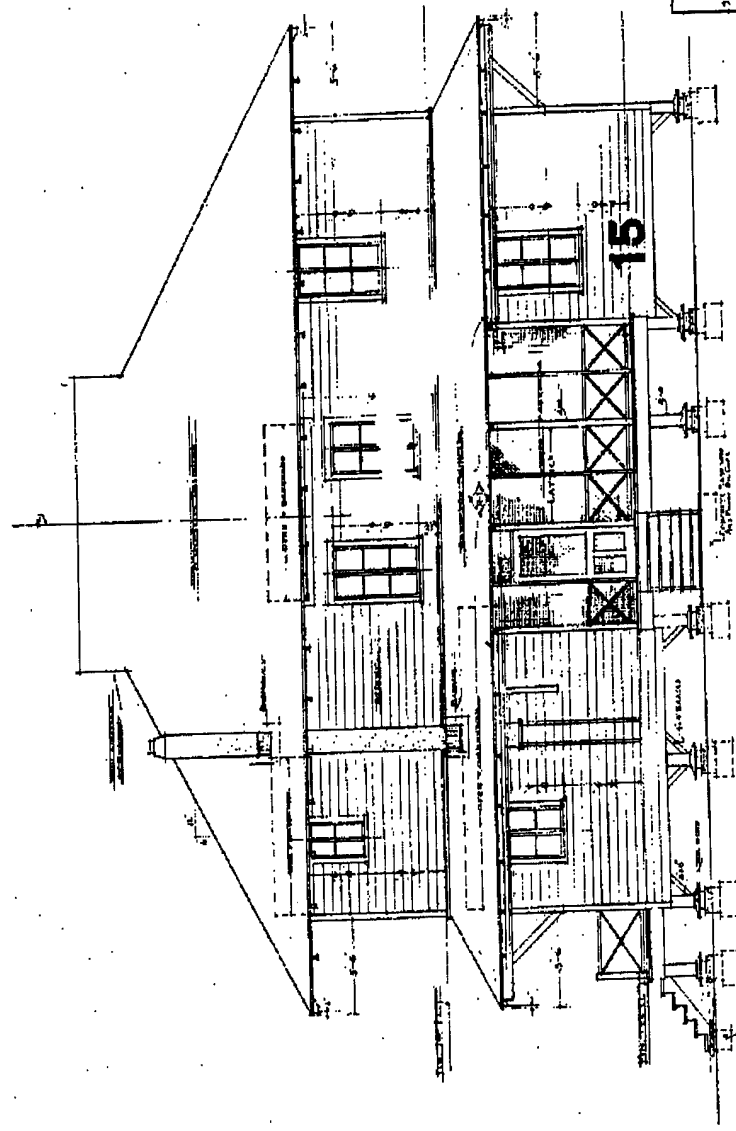
DATE: JULY 1915

NO. 46-602-Sub No. 2

NO.	REVISION	DATE	BY
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SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HABS No. CZ-4-A-27

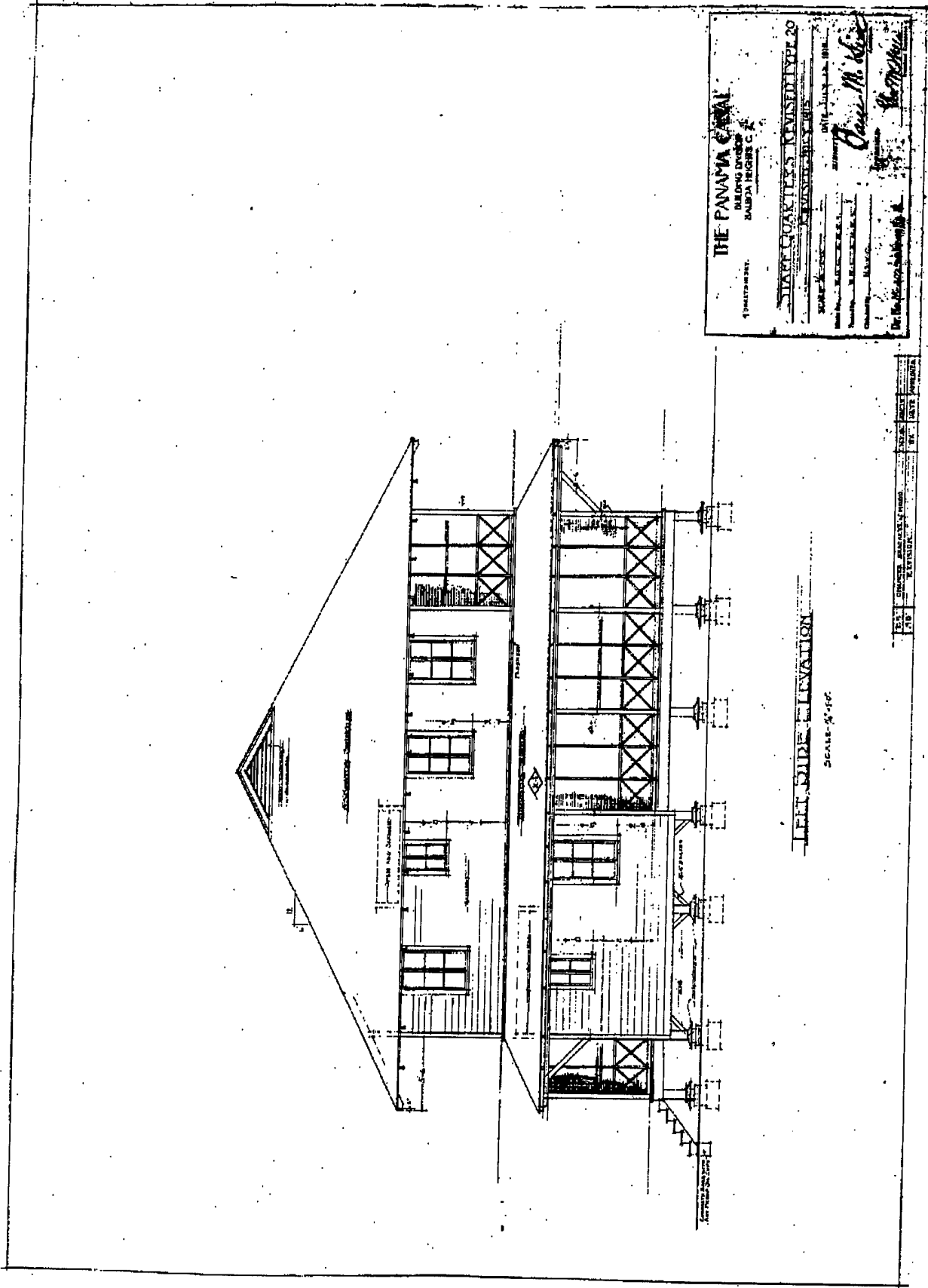


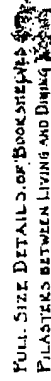
REAR ELEVATION  
SCALE 8'-10'

THE PANAMA CANAL	
BUILDING DIVISION PANAMA ENGINEERING	
STAFF QUARTERS (REVISED TYPE 20)	
REVISED: JULY 1913	
DATE: JULY 12, 1913	BY: <i>Frederick M. Hertz</i>
APPROVED: <i>Frederick M. Hertz</i>	DR. H. J. GARDNER, JR., CHIEF

NO.	REVISION	DATE	BY	APPROVED
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HABS No. CZ-4-A-28









# HISTORIC AMERICAN BUILDINGS SURVEY

## QUARRY HEIGHTS, OFFICERS' QUARTERS (Quarry Heights Building 23)

HABS No. CZ-4-A

Location: Parkinson Lane, Quarry Heights military reservation, Balboa Vicinity,  
Former Panama Canal Zone, Republic of Panama, Central America.

Present Owner: United States Department of Defense

Original Use: Staff (Field Grade) Officers' Quarters

Present Use: General Flag and Senior Officers' Quarters

Significance: Reflecting the early construction history of Panama Canal Zone residential structures, the building is part of a group of similarly designed Officers Quarters in the Quarry Heights military reservation near Balboa, Panama. Building 23 is an excellent example of the architectural style employed by the Isthmian Canal Commission (ICC) during the construction period 1904-1914. The style and method of construction for Building 23 is similar to other such temporary buildings constructed for higher-ranking Isthmian Canal Commission employees. Characteristics of this tropical building style include wooden construction with wide roof overhangs, screened verandas, and screened fenestration. Plans for the quarters were revised by The Panama Canal for use by the United States Army.

QUARRY HEIGHTS, OFFICER'S QUARTERS  
(Quarry Heights, Building 23)  
HABS No. CZ-4-A  
(Page 2)

A. General Statement:

1. History: According to various sources, Building #23 was either moved to Quarry Heights or built on site and completed in November 1918 at a cost of \$8,418.67 (HABS No. CZ-4-A-21).<sup>1</sup> Because no precise date can be established for structures that may have been moved, the original architect can not be determined. Drawings for a revised type-20 house were produced by Samuel M. Hitt, Architect, The Panama Canal, Building Division, in 1915. If an original construction town structure, the building was first owned by the Isthmian Canal Commission, then the United States Department of Defense. If built from scratch on site, the United States Department of Defense has been the sole owner. Likewise, the builder was either the Isthmian Canal Commission, Division of Building Construction or the Building Division, The Panama Canal. All repair and remodeling work on the quarters was performed by or contracted by the Department of the Army. Upon completion, the building was designated as a 1-family Field Officer's Quarters 1918. The building is currently used as officer's quarters.
2. Architectural Character: The house is a square two-story structure with a full-height wraparound veranda along the front facade. The veranda is the effective front entrance to the building. A moderately pitched, turquoise-color galvanized iron hip-on-gable roof covers the building. A galvanized iron mediaqua matching the roof color and materials, wraps the quarters above the first floor windows. Constructed of platform wood frame on a concrete foundation, the original foundation platform for the house was constructed of timber posts with concrete footings. The building has wide, overhanging eaves, screened porches, and strategic ventilation openings suited to the warm tropical climate. The interior plan is a center-hall, double loaded corridor, with the formal living and dining areas located nearest the veranda. Former servant's quarters (now storage areas), kitchen, pantry, and exterior utility porch complete the rear rooms of the house. A center hall and half-turn staircase lead to the second story. Bedrooms are located adjacent to the veranda on the front side, with a smaller bedroom, bathrooms, and dry closets opposite the corridor.

The first alterations to the building began in 1932 with the widening of the front veranda. The front side of the veranda was widened approximately 4'. Sometime later, the formerly screened veranda was enclosed in clear neoprene plastic, most likely when air conditioning units were installed to cool the house. The back porch was widened in May 1933. Sometime during the mid 1950s, the building was lifted from its original concrete footing and wood post pilings to allow a new foundation of poured concrete to replace the original,

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<sup>1</sup> Property Book Sheet and Property Card, Directorate of Engineering and Housing, Army Garrison Panama, Corozal, Republic of Panama, circa 1924-1938; "Quarry Heights," USARSO History Office, 8; Isthmian Historical Society, "History of the military post of Quarry Heights," 4.

QUARRY HEIGHTS, OFFICER'S QUARTERS  
(Quarry Heights, Building 23)  
HABS No. CZ-4-A  
(Page 3)

termite-damaged pilings. The new foundation eliminated the "void" spaces created by the original wooden pilings, which altered the appearance of the house.

Interior alterations began in 1923 with the removal of the coal-fired range in favor of a gas range. Switching from coal to gas allowed removal of the exterior smoke flue that rose from the kitchen, extending past the eave edge. In 1957, asphalt tile applied throughout the first and second story screened veranda and interior living spaces covered the original wood flooring. Vinyl tile and rubber stair treads were applied on the staircase landings on 5 October 1965. The kitchen underwent substantial remodeling after initial construction with the removal of the partition wall separating the refrigerator area from the main kitchen space. A partial interior remodeling in 1969 added a freestanding kitchen cabinet, replacing some of the original built-in cabinets. A half-bath was added to the quarters in 1974, converting one original servant's room into a half-bath accessed from the veranda. The remaining space functions now as a storage area leading to the second adjacent servant's room. The half-bath, a partial enclosure of the storage room off the side veranda, included a water closet, lavatory, and asbestos tile flooring. In 1988, a central air-conditioning system was installed, requiring construction of one small built-out closet on each floor to accommodate the air handling equipment. A dropped soffit was built at the first floor hallway to accommodate the air ducts leading from the units. Construction of the dropped soffit may have caused the removal of the original partition wall, twin double sash doors leading from the living/dining area, and the central, half-height decorative wood bookcases and pilasters separating the living and dining areas. A slightly indented floor line at this juncture provides evidence of the partition wall. Additionally, an interior window opening leading from the hallway to the middle bedroom on the second floor was blocked in favor of a built-out closet to house an air-handling unit. In 1992 the kitchen was again modified to accommodate a dishwasher and garbage disposal.

The house in good condition and is well maintained. The exterior materials and construction retain their integrity. Although the interior has undergone remodeling and modifications in planning and materials, it still retains the essential characteristics of Isthmian Canal Commission-designed temporary buildings. (See photographic documentation HABS No. CZ-4-A-1 through HABS No. CZ-4-A-20).

QUARRY HEIGHTS, OFFICER'S QUARTERS  
(Quarry Heights, Building 23)  
HABS No. CZ-4-A  
(Page 4)

B. Description of the Exterior:

1. Overall Dimensions: The house rests on concrete piers located 3' -10" to 4' 6" off the ground. The first floor measures 46' 6" x 47' - 0". The second floor measures 42' - 0" x 47' - 0".
2. Foundations: The original 8" x 8" wooden pilings and concrete footings were removed due to extensive termite damage. A concrete block foundation was constructed in place of the wooden pilings. The foundation, constructed flush with the sill plate, is a noticeable alteration to the original appearance of the quarters.
3. Wall Construction: Walls are constructed of wood 2" x 4" studs placed 24" on center. Exterior walls are covered in 5" horizontal channel wood siding, painted white. Below the roof eaves and mediaqua are screened openings, providing ventilation to the interior spaces at these locations.
4. Structural System, Framing: A concrete foundation supports the wood frame load-bearing walls of the quarters. The roof is also framed in wood.
5. Porches: The veranda at the first story is 12' -10" in width along the front of the quarters, 7' - 11" wide at the sides. The front two-story veranda is framed with 2" x 6" vertical wood studs located approximately 3' on center. A 2" x 4" baluster rail joins the vertical studs lining the veranda at the first and second floors. Louvers occupy the side of the veranda nearest the garage. Originally covered with copper screening and open to the air, the veranda now is sealed with neoprene plastic sheeting for air-tightness. A galvanized iron mediaqua awning, painted a bright turquoise, protects the first floor veranda and wraps the perimeter of the building. Two wooden frame flush wood doors lead off of the first story veranda, one centrally located along the front facade serves as the effective front entrance to the house. The other is located to the side of the veranda and leads to the garage. The veranda ceiling is finished in tongue-and-groove boards painted white. The veranda is U-shaped at the first floor wrapping the living and dining areas. Wood plank staircases rise to the level of the veranda. Each staircase rests on a concrete slab.

The second floor veranda has partial wood vertical siding enclosing the veranda to rail height. A small wood two-panel door leads to a narrow wood frame fire stair attached to the exterior of the quarters, leading to the ground. The second story veranda runs only the length of the front facade, and is 46' x 10" in length by 8' x 2" in width.

A small rear porch is accessed through a door leading from the rear hall. It has a concrete floor, is one story in height, and is of wooden frame construction. Centrally located at the

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rear of the building, the porch is covered by a shed extension of the perimeter mediaqua. A single wooden flush door opens at the side. The porch measures 6' - 6" wide x 17' - 6" long.

6. Chimneys: The original kitchen range vent stack extending from the first floor kitchen through the roof eave was removed when the original coal stove was replaced with a gas-fueled stove.
7. Openings:
  - a. Doors: Three sets of doors open off the front sides of the house to the veranda. The front exterior wall of the house features 4' X 8' double, three-light single panel doors with two hinges supporting each door. Two sets of these doors open to the front veranda creating a formal double entry to the living room and dining room. A secondary door leads from the living area to the side veranda near the half-bath.
  - b. Windows: Original windows remaining on the house are paired three-light swing casement, and two-light swing casement with interior screens. Original copper-screened openings at the staircase landing are now covered with clear neoprene plastic sheeting, as are window openings in the butler's pantry and kitchen.
8. Roof:
  - a. Shape, covering: A galvanized corrugated iron, moderately pitched (rising 6" for every foot of horizontal length) hip-on-gable roof covers the quarters. Gable ends with wood ventilation louvers are oriented to the sides. The roof is painted turquoise.
  - b. Eaves: The eaves on the roof and mediaqua are open-rafter construction, with 45-degree angle, 4" x 4" support brackets at the building corners. Rafter ends are chamfered and all wood members are painted white.

C. Description of the Interior:

1. Floor Plans:

- a. First Floor: The first floor of the quarters consists of a wraparound veranda serving as an informal living and dining area. Upon entry, the formal open-plan living and dining rooms are located to the front of the house. To the center rear is an open-flight turned staircase rising from a center hallway. To the right of the stair is the kitchen and butler's pantry. To the left are a storage room, bedroom, and bathroom which

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once served as the household servants' rooms. A rear door leads to a small one-story screened service porch to the rear of the house, accessed by a short hall and exterior door beneath the central staircase.

- b. Second Floor: The center open staircase rises to a wide, central open hallway, with formal bedrooms (identified as "chambers" on the original plans) flanking the entire front side of the house. Bathrooms, dry closets with built-in shelving, and a secondary bedroom flank the sides and rear walls of the building. Front bedrooms open to the second floor of the screened veranda, a continuous space shared by all three front-facing bedrooms.
2. Stairways: A single, three-flight half-turn open-well staircase is located at the rear middle wall of the quarters. The stair is of lacquered hardwood construction, with tapered fluted newel and intermediate posts at each landing. Square balusters are painted white. Newel caps are missing. The staircase has a curved end riser. The staircase retains its original materials and appearance despite the application of rubber treads and asphalt tile at the landings.
3. Flooring: All floor surfaces are covered in beige, square asphalt tile throughout the quarters. Original floor material was 7/8" tongue-and-groove wood flooring. The staircase retains some stained wood surfaces despite the application of rubber treads and asphalt tile at the landings.
4. Wall Finishes: Interior walls are covered in horizontal beaded-board siding throughout the house. Studs are clad only on a single side, leaving the wood frame structure of the wall and the anterior side of the beaded boards as decorative aesthetic elements. Quarter-round molding finishes the rough edges of the wooden members at the wall sole plate, creating a base shoe. Door frames are plain wood jambs. Kitchen and bathrooms have vinyl wainscoting featuring embossed square panels, most likely covering the original wood beaded board wainscoting in these rooms. All wood surfaces are painted in a cool white.
5. Ceiling Finishes: Tongue-and-groove painted white.
6. Openings:
  - a. Doors: Interior doors leading to secondary spaces such as bathrooms and closets are solid wood with five horizontal panels on both floors. A swinging five-panel door connects the butler's pantry with the dining area. Formal, double 4' x 8' doors (identical to those at the first floor dining and living areas) with three-lights and a

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single panel, lead to the three bedrooms on the second floor. The glass lights painted white.

- b. Windows: Windows have plain moldings painted white throughout the quarters. Original obscure-glass sashes in the interior bedroom windows opening to the hallway are now replaced with wooden louvers. The window openings allowed for breezes to circulate throughout the entire second floor. Louvered shutters also cover former copper screened openings (now replaced with fixed-neoprene sheeting) at the staircase landing. These windows help illuminate the central hallways on both floors.
7. Architectural furniture: The butler's pantry adjacent to the kitchen retains its original configuration, featuring plain white wood cabinets with round knobs. Cabinets flank either side of the center window and along the wall below. A built-in shelf unit stands at one side wall. Stainless steel now lines the countertop below the window, but the small sink has since been removed. The kitchen contains an original wood and glass cabinet and lower shelf.
8. Original hardware: Most interior secondary doors have the original brass plain round door knobs, plates, and hinges. The butler's pantry door has the original brass push plate. Brushed aluminum door knobs replace approximately half of the original door knobs. Sash windows have original brass hardware.
9. Mechanical Systems:
  - a. Air Conditioning: Air conditioning is provided by a 5.0 ton air-handling unit.
  - b. Ventilation: Framed, fixed screened window openings located under the eaves were designed to allow natural cooling for the interior kitchen and bathroom spaces. Once providing natural ventilation through the escape of moisture and warmer air through these ceiling-level openings, the vents have since been blocked with airtight construction. Similar screened openings above the staircase windows provided ventilation throughout the first and second stories of the house. All swing casement windows were equipped with fixed interior screens (now removed), allowing cooling breezes to enter the house while preventing access by insects.
  - c. Lighting: No original lighting fixtures remain in the house. All fixtures are replacement modern opaque glass-globe ceiling mounted fixtures. The house is naturally lit by the expansive veranda, sash doors, and large windows.

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- d. Plumbing Fixtures: The original configuration of the bathrooms fixtures is intact. Plumbing fixtures in the first-floor kitchen and bathroom are not original. A clawfoot tub with original fixtures remains in the second-floor corner bathroom, as well as an original medicine cabinet with brass trim.
10. Original Furnishings: No original furnishings remain.
- D. Site:
1. General Setting and Orientation: The house faces west, situated on the side of Ancon Hill, overlooking thick jungle growth and the town of Balboa lying at the foot of the hill. Building 23 completes a row of similarly designed officer's houses comprising the Quarry Heights military reservation (Figure 1). To the south of the house is the common area of Quarry Heights, containing a shopette, post office, and administration building arranged around a central square parking lot. To the rear of the house is Parkinson Lane and a large open green space with manicured lawn, separating the quarters from Andrews Road and the United States Southern Command Headquarters (USSOUTHCOM) Building.
  2. Historic Landscape Design: A continuous sidewalk lines the front of Building 23 approximately 20 feet from the front door. Lined with original imported glass-globe cast iron street lamps similar to others found throughout the Quarry Heights military reservation, the sidewalk was most likely constructed in the early layout of the installation. Building 23 itself has no identifiable original landscape elements remaining. Four large palm trees now line the front of the veranda, but according to historical photos, this type of planting is not original to the construction (HABS No. CZ-4-A-21).
  3. Outbuildings: A wood open-frame garage large enough for a single vehicle was constructed sometime before 1951. The garage is located to the side rear of the house and is covered with a hipped roof of turquoise corrugated metal, identical to the roof treatment on the main house. Although the garage is not original to the construction of the house, it is visually cohesive with the style of architecture and materials treatment.



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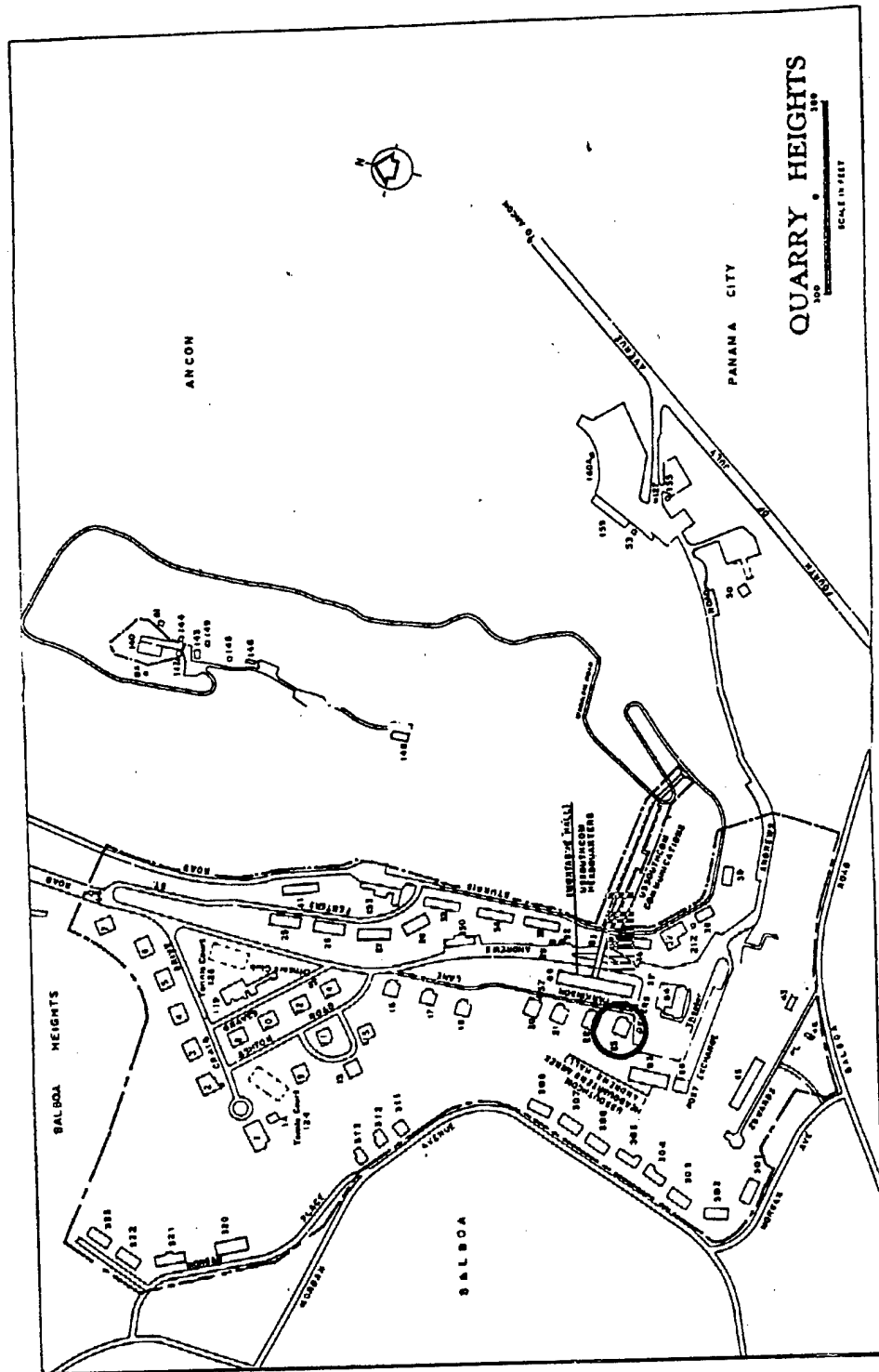


Figure 1. Source: Army Community Service, U.S. Army Garrison-Panama, Corozal, Republic of Panama.

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